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THE WORLD'S BEST-SELLING RC CAR MAGAZINE

ALL NEW ALL NITRO Team Losi Triple-XNT

TRACK TESTS

TTR TS-4n

DuraTrax

Street Force GP

Schumacher

CAT3000

OFNA Monster

Pirate

MONSTER TRUCK TIRE GUIDE

Find out what fits your truck!

25 hot products from Japan
STUFF YOU'VE NEVER SEEN! page 29

NITRO SEDAN

SLUGFEST

Serpent Impulse
vs. Mugen MTX-2



SEPTEMBER 2000

USA \$4.95 Canada \$5.95



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Volume 15 ■ Number 9 ■ September 2000

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by the staff of Radio Control Car Action



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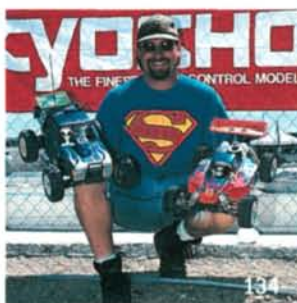
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ON THE COVER from top: Team Losi's Triple-XNT tears it up for the camera. This is actually Todd Hodge's factory ride. Meanwhile, the Serpent Impulse (left) and Mugen MTX-2 (right) stand toe to toe before the pavement pugilism begins.

track tests



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by Bob Hastings



What makes RC great?

You must know the answer if you're a regular reader of this magazine, but I thought it would be fun to compare notes on what you like best about our hobby. And if this happens to be your first ever issue of *Radio Control Car Action*, you can consider this list to be a highlight reel for all the fun you'll have when you join our ranks.

Building a kit from the ground up. There's nothing I enjoy more than lining up a stack of my favorite CDs (or maybe tuning in to a full Sunday of car-guy shows on TNN) and settling into an all-day building session. What starts out as a bunch of abstract shapes in polybags is somehow transformed into a car. Gears slide onto shafts. Outdrives slide into bearings and bearings into bulkheads. E-clips snap satisfyingly onto hinge pins, and minutes melt into hours as the instruction manual's pages keep turning. Along the way, there are little triumphs that keep me moving to the next step: that magical first spin of the tranny—fiiizzzzz, perfect; holding up a perfectly bled shock to my ear, pumping the shaft and hearing ... nothing; snapping the tie rods on and working the bellcranks back and forth as the steering knuckles swing effortlessly left to right. Magic.

Track food. This is for the racers. When the break before the Mains finally comes after three qualifiers of racing and wrenching, McDonalds never tasted so good. Or Kentucky Fried Chicken. Or the number 12 luncheon special.

Parking-lot racing. I love organized racing, but I have the best time when it's just me and some buddies goofing around. That parking block is the first turn, this manhole cover is the second, and you have to loop around the island. Somebody yells "go," and it's a race. If you get the lead, what do you do? Gloat for a lap, then slow down to make it a race again. What do you do if you have the slowest car? Cut the track, take somebody out, and laugh like crazy.

Peeling masking film off bodies. You've just completed a killer paint job. Now it's time to peel the matte film off the body to reveal the finished product. After a couple of fingernail picks, it starts to come up, and then (insert sound of an angelic choir here)—an impossibly shiny body emerges from the now formless film, like a butterfly free from its chrysalis. Pure bliss.

I could go on and on with this stuff: winning your first Main, drivers' stand gags, jumping, speed runs; there's just too much to list. But all the things I love about RC fall into the same simple categories: personal satisfaction and pride; pure thrills; and hilarity. What else do you need?

Tell me *your* favorite things about RC! Even better: the first person to put them to the tune of "My Favorite Things" (from "The Sound of Music," Chris Chianelli's favorite movie) will win a *Radio Control Car Action* T-shirt and whatever stuff is on my desk when I get your email or letter. I look forward to hearing from you!

Peter Vieira
Executive Editor

RADIO CONTROL car action

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Too much Tech too Fast?

About two years ago, I was really into racing off-road electric trucks. Then I got out of the hobby, but I recently got back into it. Thinking I would need to buy a new truck and radio system, I started reading *RC Car Action* again; what I saw scared me. There's an RC3000 cell out already; that seems pretty quick. Also, new advanced technology seems to come out every day. Is RC car racing destined to go the way of the computer market? You buy a \$100 battery, use it for a season, then next season, a new one comes out, and you really can't be competitive unless you buy it. I admit that new and better technology makes us faster, and that's great, but it seems to come too fast. I think the average racers from the local clubs often get caught up in the "I have to get the newest thing" mindset. Just some food for thought. Great mag; whenever I get a copy, I read it until it falls apart. [email]
SCOTT ZINGER

Scott, there's nothing you can do to stop manufacturers from coming out with hotter, faster, trickier stuff. But I have to tell you, it has been a long time since I've seen a gotta-have-it-or-you-can't-compete product. The truth is, no one wants to blame himself for a poor finish; it's easier to blame the tires, the engine, the steering servo, or any other piece of equipment. If people want to chase the best stuff to make the most of whatever skills they have, that's cool. But please, readers, don't believe that you simply cannot win, or do well, or perform your best without a full complement of blue screws or the latest motor. The best performance-

for-the-dollar purchase is still track time. Practice!

—Pete

Spec Tire Response

I want to reply to the spec tire idea proposed for the next Winterchamps (in the July issue's race coverage). I think it might backfire. Even if you give everybody the same tires, the factory guys will have an advantage because, as Gil Losi Sr. said, "They can get a hold of stuff not yet available to the average guy." And Losi drivers might have an advantage over everybody because they would be able to get more "tire" time on the spec tires at their private track because you know any company tries to get an edge (even if only a minute one). I'm only 15, and I'm on a budget, so I'm glad Losi is trying to do something to keep the cost of competing down, but I think it might not work. [email]
MRRRCRACER

When it comes to factory driver versus factory driver competition, I think you are correct in believing that the factory teams will do whatever they can to gain an edge. But I can tell you from experience that Team Losi genuinely cares about keeping things fair for the average racer. For example, the Team Losi Triple-XT could have debuted earlier than at the Winterchamps race, but the team decided not to compete with the truck until it was available to all racers; they didn't want anyone to feel they had lost a race to a factory driver simply because he had a truck that they couldn't buy. I don't think the team drivers should have to wait; getting the hot stuff first is a factory perk, in my book. But Losi



feels differently, and I think that says

a lot about the team's commitment to racing on all levels.

The spec-tire topic is another issue. Gil only laid out the basic premise of his plans in the comments I printed in the Winterchamps coverage, so there's plenty of room for interpretation. I don't think a new, spec-specific tread pattern is the idea he had in mind. I think the concept is to pick an existing tread that works well on the track (let's say, Losi's taper pin in pink compound), and let everyone know in advance that that tire will be the spec tire. Now the racers—factory, co-sponsored, amateur, whatever—can all practice and prepare for the race with pink taper pins. But, come race day, the racers are given a limited number of "Winterchamps"-branded pink taper-pin tires, and that's all they can run for qualifying and the Mains. If you come off the finish line and your tires don't say "Winterchamps," you're in trouble. With this system, there's no advantage to trying all sorts of different tires (everyone must run the same tread), and there's no advantage to installing new tires for every run (everyone has the same number of tires for the weekend). Get it?

—Pete

Championing the Baja Champ

Hey guys, I think your mag is really cool. Three of my friends and I

are thinking of getting into the hobby. We are only around 14 years old and don't have bottomless bank accounts. We're thinking about getting Tamiya Baja Champs. We looked at Futaba radios and liked them, too. We want to have some fun and make some sweet jumps on a purely fun track. Can you tell me if this car suits our needs and maybe give me a little review, since I missed that issue? [email]
YOUR LOYAL READER

I think you guys will have a blast with Baja Champs. They'll go over just about anything thanks to 4WD, and the enclosed shaft-drive system is basically maintenance free. The Champ is also easy to build and very tough—ideal for first-time builders like you. Since you want to buy three cars, three radios, three batteries, etc., you should definitely try to work out a package deal with the local hobby shop. You could get a discount or maybe some free stuff thrown into the mix. As for your lack of a "bottomless bank account," all I can say is this: don't underestimate the earning potential of three guys on a mission! Let the neighborhood know you're looking for odd jobs that pay a few bucks, and the greenbacks will soon follow.

—Pete

YOU SAID IT May RTRs and kits live side by side forever!

I want to talk about RTRs. I have to put in my two cents, since Ryan (Vasey) and John (Thornton) did so. These guys act like RTR is death, and I really didn't like it when John said, "... the people who buy RTRs aren't really in it for the hobby aspect." He makes it sound as though people who buy RTR are stupid idiots and not serious about the hobby. I think RTR buyers are serious but either don't have the wrenching know-how or are on a budget (I know I sure am!).

My first car was a Team Losi Double-X 'CR,' and my dad and I built it together. I agree that building it brought us satisfaction, but running it brought satisfaction, too! I think RTR is especially great for younger kids, because it's a great way to introduce them to the hobby. I say, may RTRs and kits live side by side forever! Feel free to print my email address.

DAVID KOMAI, AKA BLENDER
rcxxisal@hotmail.com



If we run your letter in "You Said It", we'll kick down a prize (it'll vary each month). Blender, you got yourself a Pro-Line hat.

WRITE TO US! We welcome your photos, drawings, comments and suggestions. Letters should be addressed to "Letters," Air Age Inc., Radio Control Car Action, 100 East Ridge, Ridgefield, CT 06877-4606. Letters may be edited for clarity and brevity, and each must include a full name and address or telephone number so that the identity of the sender can be verified. We regret that, owing to the tremendous numbers of letters we receive, we can't respond to every one.

EMAIL: ■ Chris Chianelli: chrisc@airage.com ■ Kevin Hetmanski: kevinh@airage.com ■ Steve Pond: stevep@airage.com ■ Peter Vieira: peterv@airage.com ■ Greg Vogel: gregv@airage.com

39th ANNUAL SHIZUOKA HOBBY SHOW

BY CHRIS CHIANELLI
& GREG VOGEL



The ribbon-cutting ceremony at the 39th annual Shizuoka Hobby Show. This group of dignitaries had only seconds to get out of the way before a crowd of excited attendees rushed the place.

This month, assistant editor Greg Vogel takes over "Inside Scoop." And why does Greg get to bask in the limelight while I'm left to sift through mounds of "Chris, you are the greatest" letters? Because he just returned from the Shizuoka hobby show, where RC's Japanese giants showed off their latest wares, that's why. Here's Greg with all the news from the Land of the Rising Sun (not to mention Nissan Skylines, sumo wrestling and really good sushi).

KYOSHO

LEND ME A QUARTER! Mini Z coin-op track



Here I am, working hard. Kyosho set up one of its new mini track sets so show attendees could get some hands-on experience. The Mini Z cars are a ton a fun, and you don't need a large area to run them. Kyosho intends to sell the track you see here with coin-operated transmitters for arcade use.

Full metal nitro/ electric tank

There were many tanks at the show, and this one was by far the largest. The 1/2 tank uses a nitro engine to run an electric generator that makes the power to run the large motors used to run the tracks. I'm not kidding.



IFMAR ELECTRIC 2WD WORLDS CONTENDER?

Ultima RB Type R

Now that the Ultima ST Type R truck has become well established, I knew we would see a buggy sooner or later. The Ultima RB has a shorter chassis than the truck as well as shorter arms to fit the buggy stance. The buggy shares the same smooth tranny and front bulkhead assembly as its big-wheeled brother. Watch for these cars soon.

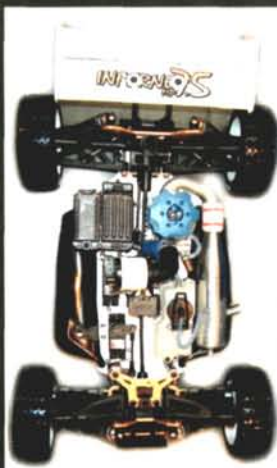


4x4-Stroke

If you've been drooling over the new O.S. FS-40S-C, you'll certainly drool over this Landmax equipped with the torquey engine. The car itself is the same rugged Inferno-based platform with the .40-size engine bolted to it. To bolt the mill in, Kyosho reconfigured the manifold and the pipe.

BLAZIN' BUGGIES Inferno 7.5

Since the original Inferno appeared, Kyosho's top 1/8-scale buggy has evolved slowly with only small changes from model to model. That's about to change; the latest Inferno, the 7.5, shares little more than its name with its predecessors, and 90 percent of its parts are new. The most notable change is the low-CG drive train that features small-diameter diff rings and pinion gears that sit so low in the chassis, they would poke through the bottom of it if Kyosho hadn't stamped the chassis with "blisters" to accept the gears. Other notable features include longer, stronger suspension arms, new shock-mounting locations on the aluminum shock towers, a revamped wheel-and-hub design with a new bolt pattern and a remodeled radio box. Kyosho really went to town.



Inferno TR15

This new buggy caught my eye, and I'm sure it will grab your interest. The Inferno TR15 is a new 1/10 gas buggy based on the latest Superfen chassis. Like the big tourer, the TR15 features "pumpkin" diff cases and full-time, shaft-driven 4WD. Maybe with this new release, we'll see many more 1/10 gas buggies on the race circuit.

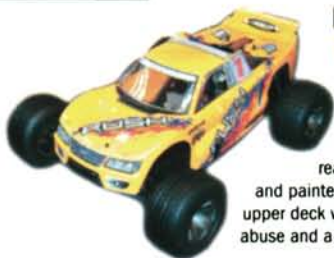




RUSH INTO NITRO

Nitro Rush

In our coverage of the Chicago Model Show, we introduced you to HPI's Nitro Rush in its early stages. Since then, it has gone through many design changes, and I must say that HPI has outdone itself. The truck is very user-friendly, as it will be available ready to run with an installed radio (an HPI-branded Airtronics Blazer) and painted body. The truck features a narrow tub-type chassis, Stealth-looking upper deck with receiver hatch, slipper clutch, thick suspension arms ready for abuse and a .15 engine for pony power.



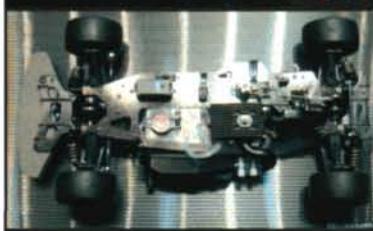
CONGRATULATIONS, HPI

HPI is growing rapidly, and we had the opportunity to attend the grand opening of the company's new Japanese headquarters. Here is the opening of the sake barrel—a traditional Japanese good-luck ceremony. RC Car Action associate publisher Sharon Warner is on the left, and HPI president Tatsuro Watanabe is on the far right.

TAMIYA

SUPER-LOW, SUPER-SIZE TGR

Check out Tamiya's TGR. The new 1/8-size .15-powered touring car is one sweet ride. Talk about low CG; I don't think it can get any lower. The car is equipped with the carbon upper deck, low heat-sink head, tuned-pipe race tires, 2-speed and more. But get this: we heard Tamiya's chiefs don't plan to bring it to the States. I think Tamiya fans need to give them a call and provoke them into reconsidering their decision.



KIT-QUALITY RTRs XB ready-to-run series

XB stands for "expert build"; according to Tamiya, the acronym was chosen because expert model builders set up the kits for you. The XB vehicles will roll out of the box with painted bodies and radios installed. The first available model will be the Pajero, shown here, with a Chevy Silverado stadium truck to follow. The XB cars are based on the original Pajero/Isuzu Mu/Jeep Wrangler kits. They're unique; a unibody-like chassis uses a universal drive shaft to spin a scale-looking straight trailing axle, while the front end is fully independent.



a la

TEAM **Kinwald**

TK5008	Blue Aluminum Battery Strap	\$19.99
TK5009	Blue Aluminum Lower Front Bulkhead	\$29.99
TK5010	Blue Aluminum Upper Servo Brace	\$29.99
TK5011	Blue Aluminum Rear Body Mounts, 1 Pair	\$17.99
TK5012	Blue Metal Flake Graphite Front Shock Tower	\$15.99
TK5013	Black Kydex Transponder Mount	\$2.99
TK5014	Blue Aluminum Shock Bushings, Front And Rear	\$7.99
TK5015	Blue Aluminum 0 Degree Rear Pivot Blocks	\$29.99
TK5016	Blue Aluminum 2 Degree Rear Pivot Blocks	\$29.99
TK5017	Blue Aluminum Servo Mounts, 1 Pair	\$19.99
TK5018	Blue Front Brace With Sway Bar Mount	\$11.99
Front suspension brace with slot that fits XX front sway bar wire.		
TK5019	Blue Adjustable Rear Sway Bar Mounts	\$14.99
Uses Losi sway bar wires. Adjustable to easily change wire length to fine tune your handling without changing the wire diameter.		
TK5020	One Piece Rear Wing Clip, 3 Pieces	\$4.99
Special long blue clip that goes through both the rear wing mounting posts.		
TK5022	Blue Aluminum Motor Plate, Same As In Kit	\$10.99
TK5023	Blue Aluminum Heatsink Motor Plate	\$25.99
TK5024	Blue Aluminum Screw Kit	\$18.99
TK5025	Blue Aluminum Axle Bearing Spacers, 4 Pieces	\$9.99
TK5026	Blue Aluminum Rear Arm Brace	\$8.99
TK5027	Blue Aluminum Slipper/Shock Wrench	\$21.99
Allows slipper adjustments without removing the rear tire. Tightens shock mounting nuts without scratching shock body.		
TK5028	Blue Titanium Tie Rod Set	\$26.99

TRINITY

www.teamtrinity.com

YOKOMO



YOU WANT TO START SOMETHING, PUNK?

Yokomo's new starter boxes are perfect for starting touring cars. The box features a metal case with plastic endplates, adjustable guides, dual motor drive, rubber starting wheel and a handle with a hole for glow-igniter storage.

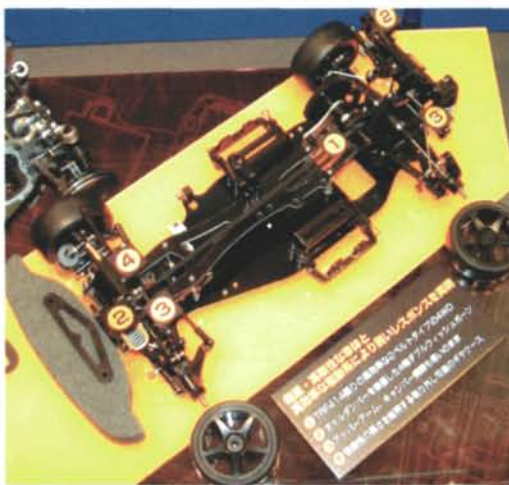
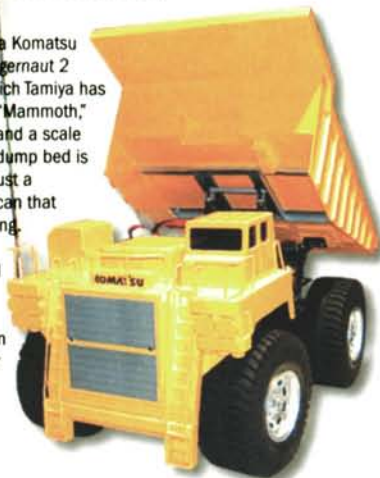
YOKO-MO' NITRO GT4

Yokomo's nitro GT4 was on display. The GT4 and GT4w shown here are similar, with the exception of (left) the GT4w's 2-speed tranny and (right) the GT4's single-speed and 4-cell battery holder. You can see the GT4 up close in the premier issue of *Radio Control Nitro*, on sale now.



DUMPS LIKE A TRUCK Mammoth

Tamiya has replicated a Komatsu dump truck on the Juggernaut 2 platform. The truck, which Tamiya has appropriately dubbed "Mammoth," has huge rubber tires and a scale ABS plastic body. The dump bed is fully operational with just a 2-channel radio. How can that work? Simply by steering. Stop the truck, and turn the steering to full lock in one direction for a few seconds to raise the bed, then turn to full lock in the other direction to lower it.



BIG T HITS THE TRACK TA04

Tamiya was flexing its new TA04 Pro and had every right to; this new sedan is hot. The car features a double belt-drive system like most popular race tourers and a narrow FRP double-deck chassis. Plastic, oil-filled shocks damp the suspension, swaybars are standard equipment, and there's much less slop in the suspension and steering systems than with previous Tamiya tourers. I also got a chance to see a bone-stock TA04 in action; the car was dialed on an unprepared parking lot.

YOUR BEST R/C RACING BATTERIES DESERVE OUR BEST CONNECTORS

9 gold plated contact points on each connector produce a tight, super low resistance connection. Designed for use with wire up to 12 awg!



TRINITY

RC5021 2-Male, 2-Female Connectors
Wires 1 Speedo & 1 Battery, \$2.99

RC5021B 2-Male, 20-Female Connectors
Wires 1 Speedo & 10 Batteries, \$14.99

LRP



CHARGE IT!

LRP wants to make our hobby as enjoyable as possible, and the new NIMH digital charger and "Quick and Easy" charger are LRP's answers to your charging needs. The NIMH charger is specifically designed for charging finicky NIMH batteries for optimum performance. The quick and easy charger is just that: quick and easy. Plug it in, push the button, and the battery is charged at a constant 5 amps.

BREAKER ONE-NINE!
Truck-specific ESC

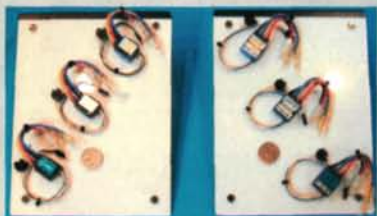
After noticing the recent surge in RC truck popularity, LRP introduced a new truck-specific ESC. The speedo is designed to hold up to the rigors that monster truck drivers put their vehicles through. The throttle has a smooth feel—more like a racing ESC—and includes the same number of reverse FETs as it does forward, so overheating shouldn't be a problem.

NIMH Discharger

LRP's new NIMH battery discharger will safely dump your nickel-metal packs, and it shuts down to leave enough juice for safe storage. The discharger's case is small, equipped with a Tamiya connector and can handle 6- to 7-cell packs.

LITTLE LRPs
Quantum series ESCs

LRP is working all the time to make better speed controls; now it's making them smaller, too. As does the existing IPC line, the new line of Quantum ESCs has three categories of speeds: "sport," reversing and "Pro." Heat sinks will also come with the ESCs in case you feel more cooling is necessary.



FUTABA

FUTABA FINALLY
GOES MICRO

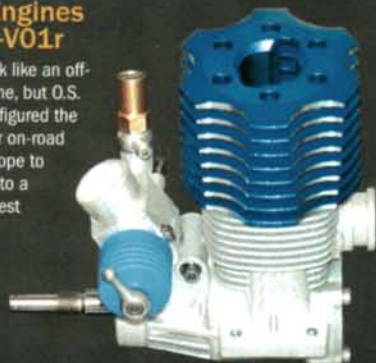
Futaba's well-traveled ESC line has been due for a redesign for some time, and it looks as if the time has come. Futaba unveiled a new line of micro ESCs that feature one-button setup technology and—depending on the unit—can handle a wide range of motor winds. The new range of ESCs will be able to handle everything from racing to backyard running.



O.S. ENGINES

O.S. Engines
21RZ-V01r

It may look like an off-road engine, but O.S. has reconfigured the porting for on-road use. We hope to get one into a car for a test soon!



ORION

3K POWER
Orion V Max matched 3000 packs

Team Orion was showing off the new matched 3000mAh batteries that use Sanyo cells. That's all for now until we can test the new cells.



Shock Sledge

Team Orion offers Sledge silicone shock oil in various weights for shock damping. The stuff in the spray bottles in the background is Orion's new line of track and vehicle type-specific traction compounds.

NITRO-POWERED
NI-CDs?

Orion Nitro Battery Packs

Built with the racer in mind, Orion 600 and 1000mAh receiver battery packs are configured to fit snugly into any nitro car and provide lots of run time and power.

KO PROPO

MODEL MUSCLE

KO is known for top-shelf RC electronics, and the new analog servos shown here are no exception. The two to the left are excellent for 1/8 buggies or other nitro applications that don't need the booster lead, while the servo on the right is spec'd for 1/12 use. ■



Win a \$500 gift certificate from DuraTrax! Send a sharp, uncluttered, well-exposed color photo of your vehicle (no Polaroids), and a brief description, to Readers' Rides, *RC Car Action*, 100 East Ridge, Ridgefield, CT 06877-4606 USA. If we publish your photo, you'll receive a free *RC Car Action* decal sheet and will be eligible to win a \$500 gift certificate from DuraTrax in the "Readers' Rides of the Year Contest." Write your address and phone number on your letter and on the back of every photo you send. Good luck!

Readers' Rides

4x4 Traxxas Stampede

Daniel turned his Stampede into a 4x4 by making a forward bulkhead and upper control-arm mounts out of magnesium. Custom aluminum parts include a forward transmission bottom plate and extended forward suspension arms. This 18-inch-long truck runs on a Sanyo 2200 NiMH pack, two Atomic Force 17-turn motors, an LRP F-1 speed controller and a Parma Toyota Tundra body.

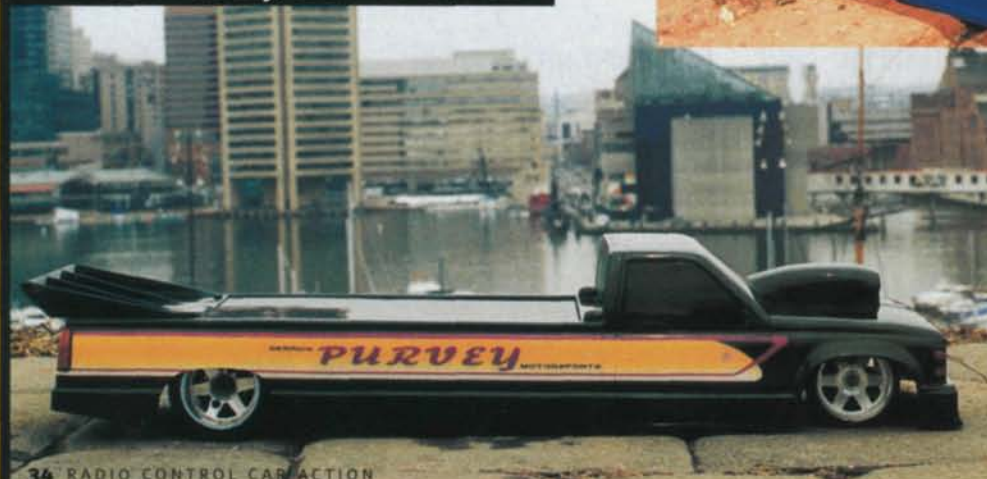
Daniel Burkhead, Searcy, AR



Custom Drag Truck

This unique truck has won many bracket races in the International Electronic Drag Racing Association, says Derrick. It is powered and controlled by a Top Fuel 1 AstroFlight motor, a Novak speed control, Orion batteries and a Hitec Lynx radio.

Derrick Purvey, Baltimore, MD



Anthony Durand, Utica, MI

Homebuilt Hornet Truck

This cool-lookin' truck started as a gearbox from a Super Hornet buggy equipped with DuraTrax ball bearings. Among its features are HPI uprights, RS4 MT shocks, Pro-Line Masher tires and a Stampede body. Electronics include a Tekin 420 G2 ESC, 12 Sanyo RC2000 cells and a 5-turn AstroFlight Top Fuel motor with Trinity heat sink. We like it!



Mark Messerly, Hinsdale, IL

HPI Proceeed

Mark's Proceeed is stock with an O.S. 21RZ-R(P) engine, an RB tuned pipe and Futaba 9303 servos. He uses Blue Thunder 20-percent-nitro fuel, which he says, makes it run "very strong and consistent." Great photo, Mark!

sponsored by



Readers' Rides

Jon Hair, Waterford, MI

DuraTrax Maximum ST

Jon's hop-ups include a DuraTrax tuned pipe, an MIP On-Board Temperature Gauge, full ball bearings and a Great Planes Precision fuel filter. An HPI MT-1 body tops it off while a Futaba 2PC sport radio gives it direction. Looks as if Jon considered his truck to be "RTM"—ready to modify!



Bernie Riedel, Clifton, NJ

Tamiya King Tiger and Sherman

These 1/16-scale tanks won first places in a recent Tamiya contest. They feature variable-speed belt-turret drive, a 360-degree rotating antenna and a motorized gun barrel that moves up and down. When fired, the gun shoots infrared "shells" and produces flashes and realistic sounds. Both tanks also have sensors that acknowledge a "hit" from another tank by emitting the sound of an explosion.

Associated RC10B3 and RC10T3

Ryan races his Associated's weekly at local tracks. The T3 features a Paradox Pro motor and a Tekin G12L3 speedo along with B&T matched 2000s. A Paradox Pro, a Novak Cyclone ESC and B&T matched 2000s get the B3 moving. Both are controlled by JR's XR3 radio, and Ryan uses Deans connectors on the electronic gear.

Ryan Metz, St. Louis, MO



Peco Pascua, Santa Rita, Guam

Tamiya Clod Busters

The truck with a green and silver Pro-Line body is equipped with an ESP chassis, DuraTrax gold shocks and Dynotech motors. The other one has a T-Maxx body, ESP chassis and Losi long shocks, and both trucks feature a Novak Super Rooster ESC.

sponsored by





Pit Tips

BY JIM NEWMAN

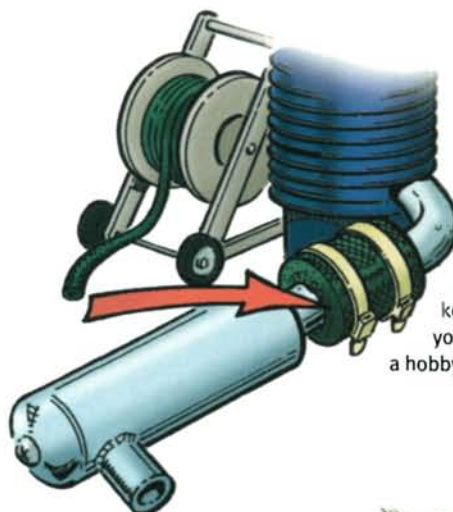
WIN AN OFNA Z-10 RALLY! Radio Control Car Action will give a 6-month subscription (or extend an existing subscription) to the author of each idea used in "Pit Tips." "Top Tip" winners will be sent an OFNA Z-10 Rally kit. All published "Pit Tip" authors win an OFNA yo-yo. Send a rough sketch to Jim Newman, c/o Radio Control Car Action, 100 East Ridge, Ridgefield, CT 06877-4606 USA. BE SURE YOUR NAME AND ADDRESS ARE CLEARLY PRINTED ON EACH SKETCH, PHOTO AND NOTE YOU SUBMIT. We're unable to publish many good tips because we don't have the sender's name and address. Please note: because of the number of ideas we receive, we can neither acknowledge every one nor return unused material.



Get hosed

If you are running a nitro vehicle and you lose your air cleaner, you can make a temporary one until you're able to get another. Simply take a small piece of panty hose and slip it over the carburetor opening. The panty hose can be held in place with a small O-ring.

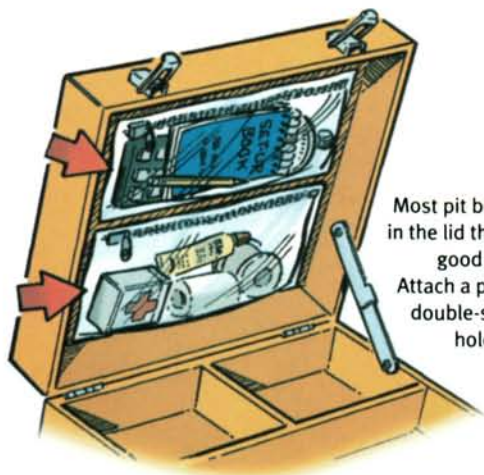
BOB PLANT
Fargo, ND



Garden-hose coupling

Make a temporary header coupling out of a piece of old garden hose. Simply cut it to shape and attach it with zip-ties. It will keep you running until you have a chance to visit a hobby shop.

ALAN ESCALANTE
Sun Valley, CA



Safety pit

Most pit boxes have a lot of space in the lid that's left unused but is a good place to store supplies. Attach a pencil bag to the lid with double-sided tape, and use it to hold ESC manuals, first-aid stuff, a calculator and other supplies.

GARY PRICE
Orem, UT

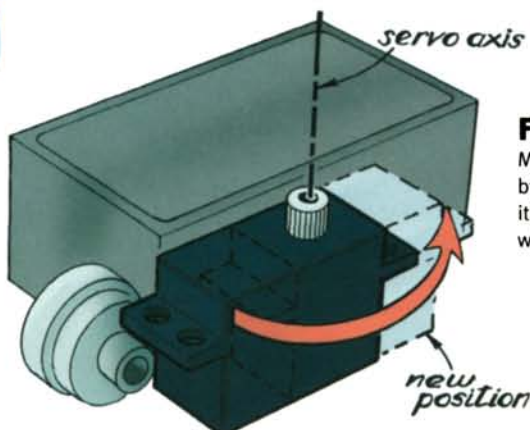


Better gear seal

Cut a thin rubber band and use thin CA to glue it to your gear cover on the side that meets the gear-box. When you attach the gear cover, tighten the screws until the rubber band bulges slightly.

KEN PRATHER
Boynton Beach, FL

TOP TIP



Flywheel removal

Make removing the clutch bell on your Losi NXT easier by rotating the throttle/brake servo 180 degrees from its stock position. Mark where the new servo mount will go and drill new holes for it.

PATRICK SALM
Newton, WI

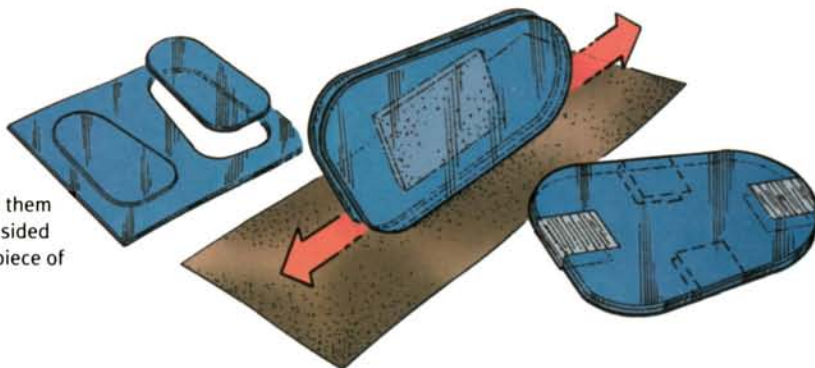


Pit Tips

Wing thing

Cutting out touring-wing side plates is easy, but they are never the same shape. Line the two sides up and hold them together with a small piece of double-sided tape. Then sand their edges on a flat piece of sandpaper until they match.

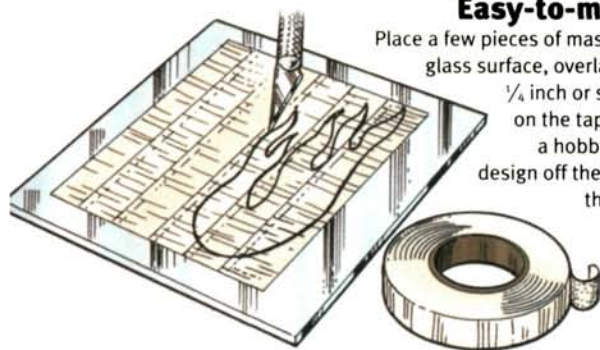
TIM PENNINGTON
Waukesha, WI



Easy-to-make masking

Place a few pieces of masking tape on a clean glass surface, overlapping the pieces by $\frac{1}{4}$ inch or so. Draw your design on the tape and cut it out with a hobby knife, then pull the design off the glass and stick it on the inside of the body.

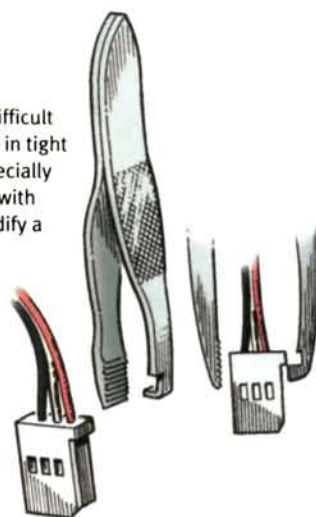
ROSS SUBASIC
Bridgeport, OH



Plug puller

Servo leads can be difficult to install and remove in tight compartments—especially when they're coated with exhaust residue. Modify a pair of tweezers by bending one of the tines in an "L"-shape and adding serrations to the opposite side for additional grip.

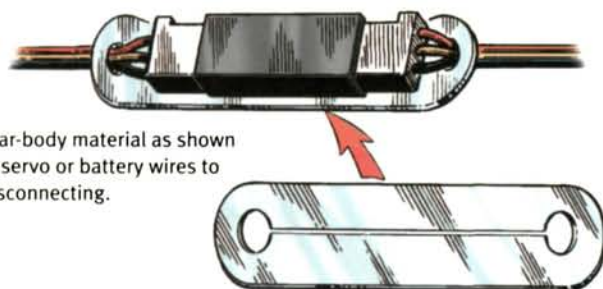
CHRIS SPEARS
Boise, ID



Lead retainer

Cut a piece of scrap car-body material as shown and slide it over your servo or battery wires to prevent them from disconnecting.

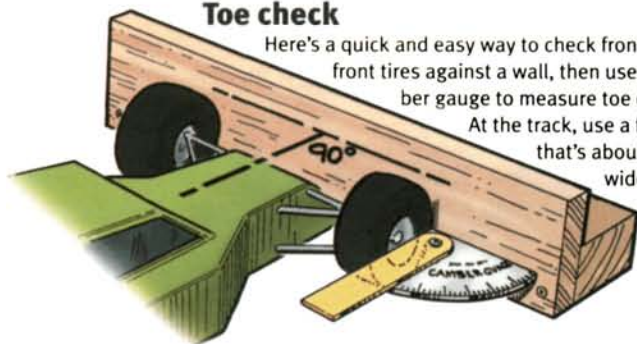
KYLE RIDGE
Wilkes-Barre, PA



Toe check

Here's a quick and easy way to check front toe. Place the front tires against a wall, then use an RPM camber gauge to measure toe on each side.

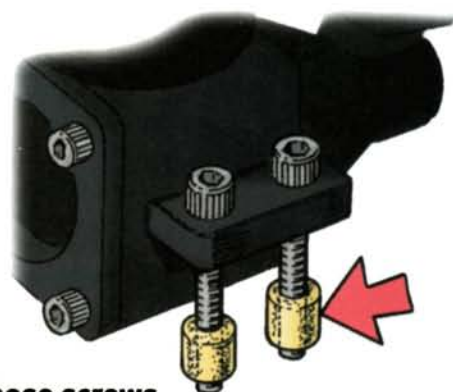
At the track, use a flat board that's about 4 inches wider than the width of the car on each side to act as a "wall."
ROSS JAENKE
Berea, OH



Hold those screws

When you remove the engine from a nitro vehicle, the engine-mounting screws always seem to get lost. To keep them in place, simply slide a small piece of fuel tubing over the threads of the screws.

CARL SMART
Aberdeen, MD



Troubleshooting

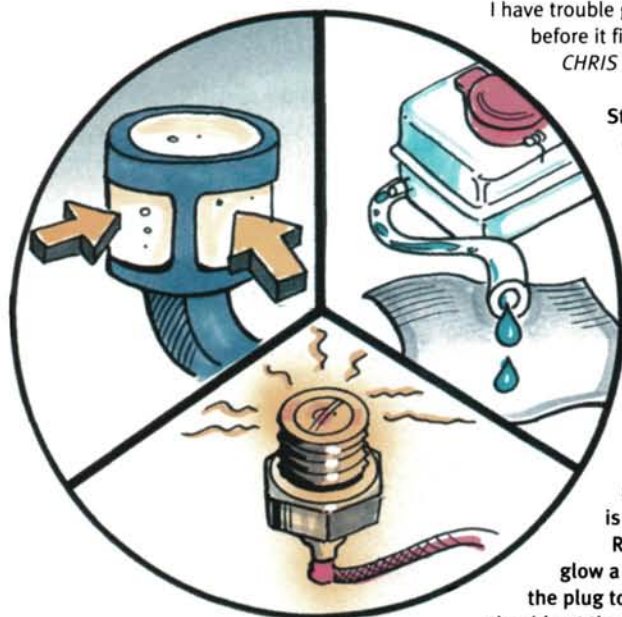
BY DEREK BUONO • ILLUSTRATIONS BY JIM NEWMAN
AND STEVE COLLINS

If you have a technical problem that your hobby shop or racing friends can't resolve, give us a shout at *Radio Control Car Action*, and we'll see if we can chase down an answer for you. Questions should be of a technical nature and should be addressed to *Troubleshooting, Radio Control Car Action*, 100 East Ridge, Ridgefield, CT 06877-4606 USA. We regret that, owing to the tremendous number of letters we receive, we can't respond to every one.

Hard-Starting Rustler

I have trouble getting the engine started on my Traxxas Nitro Rustler. It seems to take a half hour before it finally fires. I have checked everything and can't seem to find a problem. [email]

CHRIS TRAIL



Starting a nitro engine requires air, fuel and an ignition source. First, make sure the engine is not deprived of fresh air. Check the air filter and make sure it is clean.

Try to start the engine without the air filter. Then put on the filter while the engine is running, and if the idle speed changes drastically or the engine shuts off, the airflow is being restricted.

Next, check to make sure the engine is getting the fuel it needs. Pull the line feeding the carburetor and aim it at a piece of cloth (not near an open flame) in a well-ventilated area. Remove the line from the exhaust's pressure fitting, and gently blow into it. The fuel should freely flow out of the other end, feeding the carb. If there is considerable resistance, check each part to see what is causing it. When the fuel flows freely, reconnect the line to the carb and again gently blow into the pressure line. Be careful not to put too much pressure in the tank because fuel will come back up the pressure line once you stop blowing. You should be able to see fuel enter the carb. Reconnect all lines and restart the engine. If everything is in check, but it still doesn't start, it is time to check the ignition.

Remove the glow plug and hook it to the glow igniter. The plug's element should glow a bright white/orange within a second. If you are using an EZ-Start system, attach the plug to the wire, hold the plug to the side of the head, and turn the engine over. You should get the same results: if the plug doesn't glow brightly and the igniter/battery has been charged, change the plug.

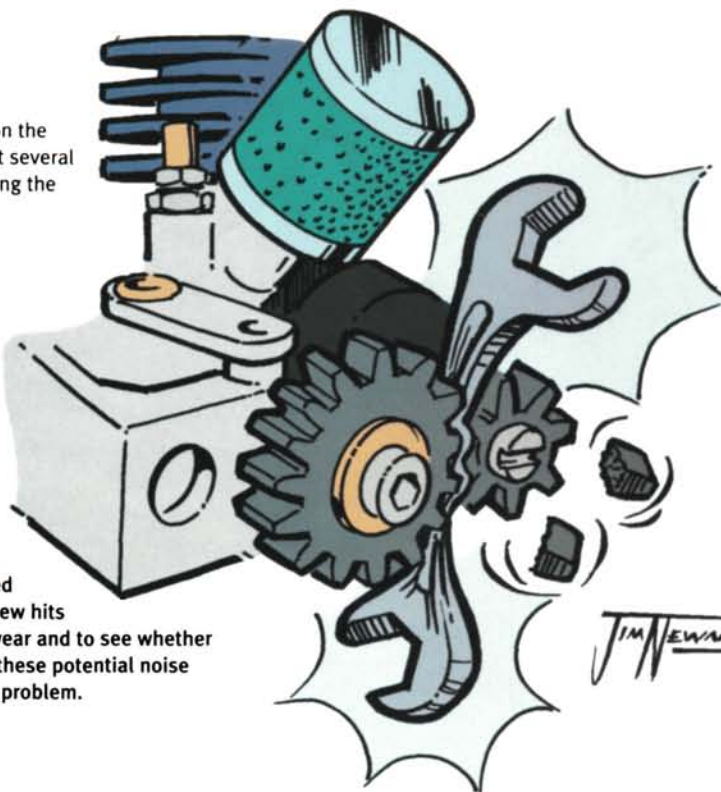
When you have checked everything, reconnect all lines and wires and try to start the engine. It may take a few seconds for fuel to reach the carb because all the fuel lines were disconnected. To speed this up, place your finger over the exhaust stinger to force fuel into the carb. Unless the engine adjustments are way off, it should fire right up.

Double-XT Gear Noise

My Losi XXT makes a clicking noise whenever I yank on the throttle. I think it's the differential, but I have rebuilt it several times and the noise is still there. What could be causing the noise? [email]

DAVID S.

I don't think the diff is your problem. If the sound comes from the gearbox, check for worn or chipped gears (chipped gears are obvious; a worn gear has teeth with a "shark fin" profile). If something is caught in the gears, this could be causing your problem (a pebble could be stuck in the spur gear). If you find something lodged in the teeth, it can easily be removed; use an X-Acto blade to pick out each tooth. Clean off all the gears with a motor spray, and regrease those that require it. Check all rotating parts to see whether a pin or setscrew is sticking out too far. If the pinion isn't lined up properly with the spur gear, sometimes the setscrew hits the spur or the gear cover. Check the universals for wear and to see whether the pins are hitting the rear hubs. By eliminating all these potential noise sources, you should be able to get rid of the clicking problem.





ROBINSON RACING PRODUCTS

Troubleshooting

Pulling Problems

I have a problem with my RC10GT: under acceleration, the car pulls strongly to the right, but it goes straight when off the throttle. What could cause this? [email]

MATTHEW JURGENS

Let's first rule out too much horsepower. That may sound lame, but

today's sometimes too-powerful engines can cause the tires to break loose at any speed. If the pulling persists when you gently roll the throttle, then the problem might be in the drive train. The power that is being transferred to the left rear wheel (in your case) is actually "pushing" the truck to the right, as you mentioned. This is usually

because of some binding on the right side of the drive train (the direction in which your truck is "pulling"). Check all the transmission's bearings and those that support the axle. Dirt often gets inside a bearing, and this causes it to seize.

Also, check all roll pins and press-on hubs to see that they are installed correctly, and make sure that the wheel nuts aren't over-tightened; that can cause binding. Any of these factors will prevent equal power from being delivered to the right side of the drive train, thus causing the truck to veer to the right, especially under acceleration. With a little patience, your car should go straight as an arrow.



Unequaled Precision

RS4 Nitro Vented Flywheel



Precision CNC machined from light-weight aluminum, this vented flywheel blows air over the clutch shoes, improving performance and extending shoe life. RRP 1570 RRP 1571 Pull Start

ALL NEW ITEMS

Nitro Stampede Hardened Steel Spur Gear With Bearing



TC3 Lite Aluminum Outdrives



Blue anodized and 40% lighter than stock ball diff outdrives. RRP 1475

Precision machined one-at-a-time from a single piece of steel and then hardened this 65T spur will last and last. A sealed Ball Bearing is included. RRP 8565

Unsurpassed Reliability

Outstanding Performance

Kyosho Ultima Blue Lightened Slipper Kit



The rear plate is hard anodized to reduce wear and the front plate is color treated. The front plate is designed to hold the slipper pad forcing the pad to slip on the rear plate. When pad shows sign of wear just flip it over for a new surface. Metal parts are CNC machined for a flawless fit. RRP 7515

TC3 Ultra 48P Spurs



Tough, smooth and quiet. These new spurs are precision machined from heat-resistant plastic, to mesh flawlessly with our Pinions. 48P Ultra Machined Spurs are available in even numbers from 70T thru 80T, RRP 1670 - RRP 1680.

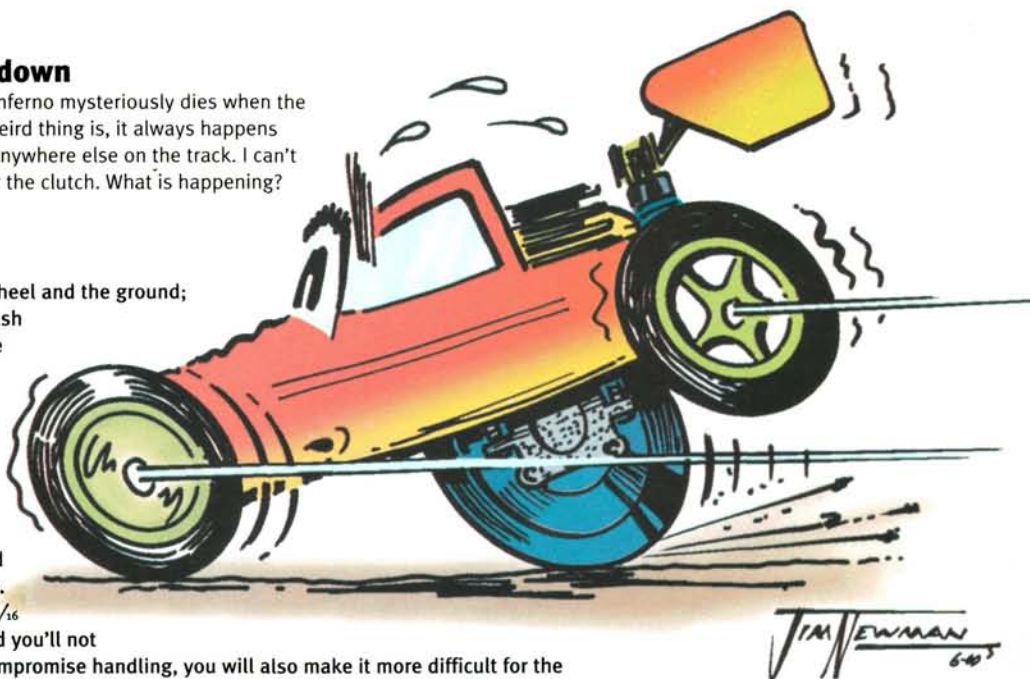
Mysterious Engine Shutdown

Sometimes during a race, my Kyosho Inferno mysteriously dies when the car slaps down after a big jump. The weird thing is, it always happens when I go over the same jump, never anywhere else on the track. I can't find anything wrong with the engine or the clutch. What is happening?

[email]

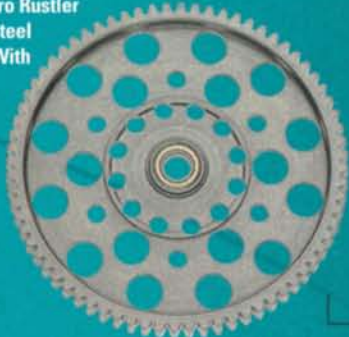
BEN V.

Check the clearance between the flywheel and the ground; you may notice that the flywheel is flush with or extends past the bottom of the chassis and is snagging on the ground where the chassis bottoms out. If that is so, you will have to get the flywheel a safer distance from the ground. This can be accomplished by changing to a flywheel of a smaller diameter, or by placing shims between the engine and the engine mounts to raise the engine. Just don't raise the engine too much; $\frac{1}{16}$ inch should be plenty. Any higher, and you'll not only raise the center of gravity and compromise handling, you will also make it more difficult for the starter-box wheel to contact the flywheel. You may also want to limit the up-travel of the shocks so the chassis cannot bottom out. ■



Superb Quality

**T-Maxx/Nitro Rustler
Hardened Steel
Spur Gear With
Bearing**



Precision machined one-at-a-time from a single piece of steel and then hardened this 72T spur will last and last. A sealed Ball Bearing is included. RRP 8572

Rustler/Stampede/Bandit/Sport Nitro/Electric Sun Gears



CNC Machined from a from bar stock, these hardened, Sun Gears will last longer in your Traxxas machine. No serious racer should do without these gears. RRP 8500.

Intelligent Innovation

**Ultima GP-R
Hardened
Steel Idler
Gear**



Cut from solid steel stock, this gear is lightened and then hardened for super quiet precision and extra long life. RRP 7505

Thoughtful Design



**1999 World Cup and
National Champion**

"I only care about performance, and that's why I run Robinson Racing gears and slipper clutches exclusively."

— Richard Saxton

**ALL
NEW
ITEMS**



**Ultima GP/EP-R
Hardened
Diff Gear**



Hard anodized, precision machined aluminum diff gear. RRP 7500

ROBINSON RACING PRODUCTS

4968 Meadow View Drive · Mariposa, CA 95338 · Voice 209.966.2465 · Fax 209.966.5937



Inside Losi's All-New Nitro Burner

by Peter Vieira

Team Losi's* NXT was good enough to be our 1999 Truck of the Year, and it can hold its own in the $\frac{1}{10}$ nitro truck arena, but the Team's racers and designers knew they could build a better truck. Instead of refreshing the old GTX/NXT platform (which has some parts that date back to the LXT), Gil Losi Jr. and the rest of the talented crew put together an all-new machine that combines the suspension geometry of the new electric Triple-XT with a super-clean, versatile chassis layout.

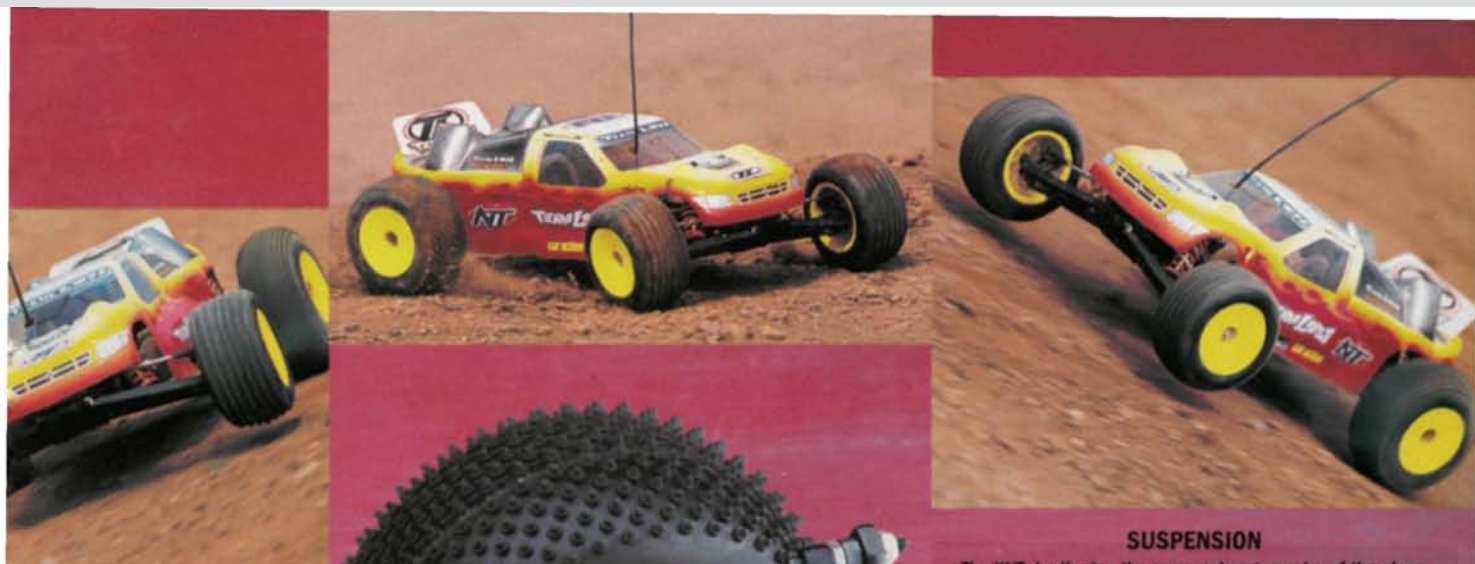
A much rougher version of the Triple-XNT has been race-tested, and it won the NORRCA fuel nats. In this issue, the early prototype truck is featured in our coverage of the Silver State Nitro Challenge.

The truck you see here is very close to production, although some of its parts are hand-fabricated and may be changed slightly before Team Losi begins pumpin' plastic. Since the basic design has already proven itself in competition, we expect big things from the production truck.

Enough intro; on to the features!

Team Losi Triple-XNT





SUSPENSION

The XNT duplicates the suspension geometry of the electric Triple-XT and recycles the electric truck's front arms, hubs and steering parts (including the "advanced geometry design" angled bellcranks that eliminate bump-steer). Team Losi hopes that racers will be able to plug their Triple-XT setups into the XNT without modification; at the very least, the setups will be close. As usual, Losi's proven Hard Body, bottom-filled dampers are found on all corners.



CHASSIS

The Triple-XNT is the first gas truck to use a 7075 aluminum chassis instead of the more common 6061-T6. For those of you who aren't metallurgists (all five of you, right?), 7075 is a stronger, stiffer alloy. Just the material change would be enough to qualify the chassis as "extra tough," but Losi went even further by making it $\frac{1}{8}$ inch thick. Not impressed? Let me convert that figure to millimeters for you: 3.18mm. That's as thick as many $\frac{1}{8}$ -scale buggy chassis. An additional benefit of the heavy-duty chassis slab is its weight; the more mass a vehicle can carry down low, the better. You can't get any lower than the chassis plate!

A molded upper deck surrounds the fuel tank and further strengthens the chassis assembly, and everything is bolted to the chassis plate with fully countersunk screws. Even the engine-mounting screws are countersunk and include $\frac{1}{8}$ -scale-style concave washers for a won't-budge setup. Unlike the NXT, which had fixed gear mesh and required the spur gear and clutch bell to be changed as sets, the Triple-XNT's engine-mounting holes are slotted to allow gear-mesh adjustments.

BODY, WHEELS, AND TIRES

The Triple-XNT retains the "slammed" look of its electric stablemate, and the low-slung body has excellent engine access through the open bay in the bed area. Losi's new flat-face wheels are included along with step-pin and directional-rib tires with firm foam inserts. The Triple-XNT will accept wheels from the Double-XT and GTX/NXT, so your box of mounted Losi rims won't go to waste.



SPECIFICATIONS

DIMENSIONS

Wheelbase 11.25 in. (286mm)

Width 12.75 in. (324mm)

WEIGHT

Total, RTR 69 oz. (1,956g)

CHASSIS

Type Plate w/molded upper deck

Material 7075 aluminum w/molded upper deck

DRIVE TRAIN

Type Sealed gearbox

Primary Clutch bell/spur

Drive shafts Team Losi universals

Differential Ball

Slipper clutch Dual-disc

SUSPENSION

Type Independent A-arm w/upper link

Damping Hard-anodized, bottom-filled shocks

WHEELS

Type One-piece plastic dish (standard Losi offset)

TIRES

Type (F/R) Team Losi directional rib/step pin

EXHAUST SYSTEM

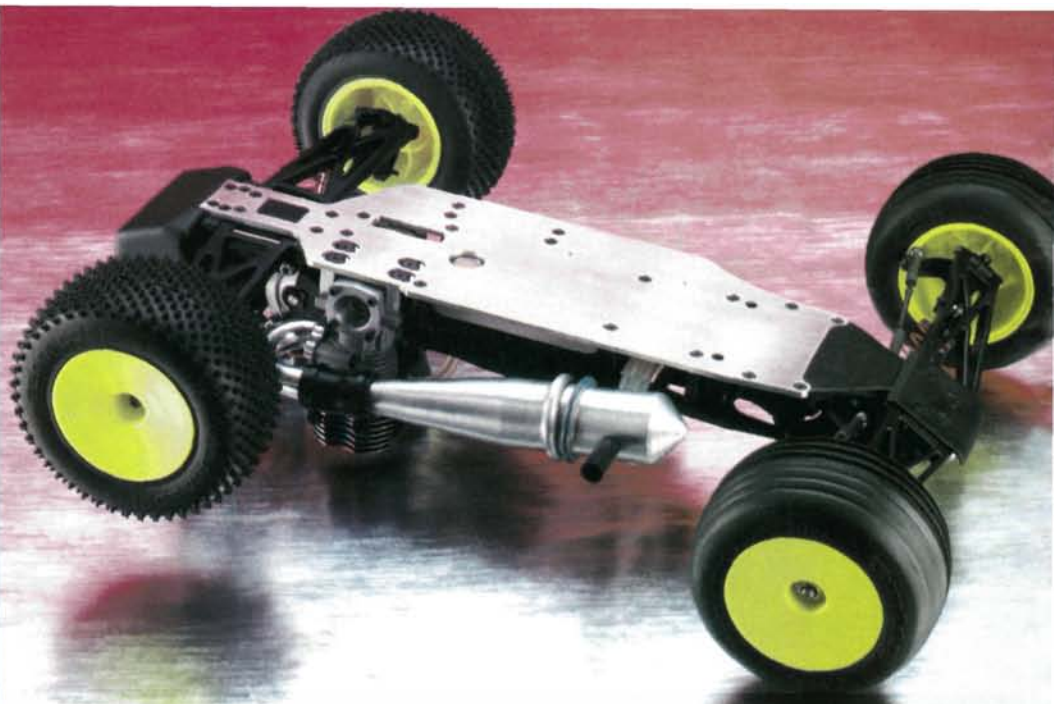
Manifold Aluminum 2-bolt universal type

Pipe Team Losi aluminum, tuned pipe

ENGINE

Not included

Prototype weight and specs; final kit may differ.



An $\frac{1}{8}$ -inch-thick slab of 7075 aluminum is the cornerstone of the Triple-XNT. That's over 3mm of tough stuff! Note the cutouts for the fuel tank's filter and the gearbox's "diff bulge" and the countersunk engine-mount bolts with concave load washers.

ENGINE ACCESSORIES

Team Losi didn't want racers to be stuck with one engine configuration and designed the XNT to accept pull-start and bump-start engines with slide or rotary carburetors (thoughtfully, Team Losi also made sure there is good low-end needle access with both carb types). Machined engine mounts are provided, along with all the linkage hardware for both carb setups. That's all the hardware, right down to the pivot ball for a slide carb and a Z-bend link for a rotary carb, a molded slider for the carb actuator linkage, a throttle-return spring and all the required over-travel springs and stops. Let's hope that Losi will package the set as an aftermarket item as well.

An aluminum pipe and manifold are also included. The pipe is the same as the one included with the NXT, but the manifold is new. It is bent to work with pull-start and bump-start engines, and it will fit any side-exhaust engine that accepts a bolt-on manifold.



A double-disc slipper clutch is standard equipment. Note the size of the spur gear compared to the slipper plates; thanks to the tranny's 4.11:1 ratio, a giant spur gear is not required.

TRANSMISSION

There's a lot to discuss here! Let me break it out for you:

■ 4.11: 1 RATIO

Don't look for any electric-truck ratios here; the Triple-XNT's tranny delivers an extra-low 4.11:1 ratio that allows smaller spur gears (compared to other trucks) to achieve a race-ready final drive ratio. This has two effects: first, it lowers the truck's center of gravity, since the transmission does not have to "stand up" to make room for a large spur gear. Second, a smaller spur gear places the engine farther aft on the chassis to get more weight over the rear axle.

■ DOUBLE-DISC SLIPPER

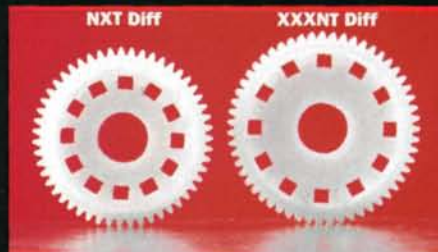
This has become a standard feature of Losi off-road-ers since the Kinwald Edition Double-X; the Triple XNT is no exception. The dual discs make for more consistent slip action.

■ LARGE-DIAMETER BALL DIFFERENTIAL

The new diff was designed with today's 1 hp plus engines in mind. The diff gear is larger in diameter (55 teeth versus the NXT's 51 teeth), and all the diff parts are heavy duty; tungsten carbide balls run on polished carbon steel rings with hardened steel out-drives. A new, stronger tension washer stack has also been fitted to the diff-adjusting hardware to prevent diff slippage when subjected to high-power, high-traction conditions.

■ DISC BRAKE

This is arguably the truck's most innovative feature. Instead of hiding the brake disc behind the spur gear, where it can become contaminated with fuel residue spun off the engine's nose bearing, the XNT's brake is mounted on the opposite side of the trans-



mission; the top shaft actually pokes out of both sides of the tranny case. In addition to keeping the disc clean, this position allows the spur gear to be hung close to the transmission instead of cantilevered out on a long top shaft (as required with designs that have the brake and gear mounted on the same side of the tranny). A final feature is the disc mount. Rather than use a hex, whose sharp-cornered shape stresses the disc, the XNT uses a lobed mount that spreads the brake load more evenly to extend disc life.

1st LOOK



The front clip is lifted from the Triple-XT, but a new mounting block is used to join it to the Triple-XNT chassis.



Above: the bolt-together battery box looks as well-sealed as a nuclear submarine. It will hold 4 AA cells, or a 3x2 hump-pack rechargeable setup. Below: the Triple-XNT sports new rear arms and a one-piece mount. The parts may be new, but the suspension geometry they deliver comes straight from the Triple-XT.



The receiver box slides over the rails molded into the upper deck/fuel tank surround. Although the box is "open," its overhanging top lip and close fit with the rails should make it very hard for fuel and dirt to find the receiver.

RADIO ACCOMMODATIONS

The old Lexan receiver shield has been replaced by an enclosed box that slides over rails molded into the fuel tank surround/upper deck. Although not completely sealed, the box will prevent the typical pit stop fuel splash from zapping the receiver. The throttle servo is held in the usual location by molded mounts that incorporate a mounting flange for the on/off switch, and the steering servo is held across the chassis beneath a nose brace. The servo can be installed in a full forward position or about 7mm farther aft, depending on your preferences for weight distribution. The forward set of holes is also useful when installing larger servos that typically require modification for use in other vehicles.

Like other gas trucks, the XNT carries its receiver pack behind the rear shock tower, but Losi provides nicer accommodations than the usual pair of zip-ties. A molded box keeps dirt away from the cells, and it is large enough to hold a 4-cell "battery box" for alkalines or a 3x2 Ni-Cd or NiMH rechargeable hump pack.



Spur gear one side of the tranny, brake system on the other—a Losi first. The clover-shaped brake disc mount is designed to spread brake loads evenly, extending disc life.

THE VERDICT (SO FAR)

Unfortunately, the truck you see here has a lot of "for photography only" parts on it; they look "real" but aren't strong enough for testing. But I can tell you that a rough prototype of the Triple-XNT won the NORRCA fuel nats in the hands of Brian Kinwald, so the basic design has to be sound, at the very least. From the look of the truck and my experience with the Triple XT, Losi's latest nitro machine could bring a new standard of driving ease to gas truck racing. We're all chomping at the bit for a test drive, but until then, we can only say the Triple-XT looks like the machine to beat.

*Addresses are listed alphabetically in "Featured Manufacturers" on page 216. ■

**TRACK
TEST**
1/8-SCALE NITRO



PHOTOS BY WALTER SIGAL

OFNA Monster Pirate

Big horsepower,
big tires, big fun

by Kevin Hetmanski

The nitro-powered monster truck scene has been surging ahead with a good supply of RTR and kit models. It's easy to see their appeal; the big trucks can go just about anywhere, and they have a sound that makes you want to get on the gas constantly. The OFNA Monster Pirate is the newest nitro-burning monster on the market, and it looks very impressive right out of the box. The truck is based on a Pirate 1/8-scale buggy chassis, but it has been mas-saged into a monster truck. I couldn't wait to do a full-blown track test on it; here's how it went down.



DATA CENTER

VEHICLE TYPE Nitro-powered, 1/8-scale, 4WD monster truck

BEST BUYER Hobbyists who have a good bit of nitro experience and like their trucks big—real big

KIT RATINGS (poor, satisfactory, good, very good, excellent)

Instructions Not rated (none were supplied with preproduction test sample)

Parts fit/finish Good

Durability Good

Overall performance Very good

SPECIFICATIONS

Scale 1/8

List price \$299.99

DIMENSIONS

Wheelbase 12.875 in. (315mm)

Width (F/R) 17.5 in. (445mm)

WEIGHT

Gross (RTR) 172 oz. (4,876g)

CHASSIS

Type Channeled plate

Material Aluminum

DRIVE TRAIN

Type Shaft

Primary Clutch bell/spur

Drive shafts Universals/dogbones

Differential(s) Planetary

Clutch 3-shoe

Bearing type Shielded bearings

SUSPENSION

Type (F/R) Double A-arm/lower A-arm w/adjustable upper link

Damping Coil-over, oil-filled shocks

WHEELS

Type White plastic w/holes

TIRES

Type Multi-spoke

POWERPLANT

Engine OFNA/Picco .21

Carb 2-needle slide

Pipe Tuned

Fuel Byron 20%

RADIO GEAR

Transmitter Hitec Lynx 3D

Steering/throttle servos Hitec

HS-945MG/HS-605BB

LIKES

- Large, intimidating size.
- Low gear ratio delivers good acceleration.
- Big tires have good traction.

DISLIKES

- Edges of chassis are very sharp.
- Fuel tank does not have a fuel filter.
- Dogbones eject when suspension is fully extended.

TRACK TEST OFNA Monster Pirate



You will find big, beefy braces at the front and rear of the truck. They are made of threaded-steel rods and heavy-duty ball ends that stiffen the chassis so much, it is practically unbendable.



This new OFNA Picco .21 engine provides plenty of yank to move the big truck. This engine is an early production unit and has a purple head; the engines will have blue heads as standard equipment.



Large, blue-anodized aluminum shocks handle the damping chores. CVA joints drive the front wheels; dogbones are used in the rear.

building & setup tips

The Monster Pirate comes 90-percent assembled, but you should know a few things before you run your truck. Here are a few tips to get you started.

Glue the tires. Use motor spray or denatured alcohol to clean the grooves in the rims and the section of the tire that sits in those grooves. When you've finished, reassemble the tire and rim, and glue them with high-quality CA—lots of it!

Install an in-line fuel filter. It is always a good idea to have one of these because even just a tiny bit of debris in the fuel tank can ruin an engine. Fuel filters are inexpensive and can prevent your having to prematurely replace the piston and sleeve—or worse.

Check the screws. If they're loose, tighten them up. If they are machine screws, be sure to add some thread-locking compound to the threads before you put them back in and tighten them.

File the chassis. The edges of the chassis are very sharp and can easily cut you. Grab a file, and shave off the sharp corners on the chassis' outside edges.

Install a high-torque servo. I highly recommend that you choose a steering servo that has metal gears and lots of torque. This truck has huge, heavy tires, and requires a high-torque servo to steer it. I installed a metal-gear servo from Hitec for increased durability.

COMPETITION

	OFNA Monster Blazer	Kyosho Nitro USA-1	DuraTrax Nitro Quake	OFNA Monster Pirate
Wheelbase	13 in. (320mm)	12.38 in. (314.5mm)	12.75 in. (323.9mm)	12.875 in. (315mm)
Width	19.7 in. (500mm)	16.5 in. (419.1mm)	16 in. (406mm)	17.5 in. (445mm)
Weight	142 oz. (4,015g)	147.4 oz. (4,179g)	166 oz. (4,704g)	172 oz. (4,876g)
Diff type	Gear	Gear	Gear	Gear
Brakes	Dual disc	Single disc	Dual disc	Single disc
Exhaust	Pipe	Pipe	Pipe	Pipe
Street price**	\$249.99	\$449.99	\$499.99 (RTR)	\$299.99
Issue reviewed	5/99	3/92	4/00	9/00

**Prices may vary depending on location.

YOU'LL NEED

- 2-channel radio.
- Throttle servo.
- High-torque steering servo.
- Receiver battery.
- Glow starter.
- Starter box.

KIT FEATURES

• **Chassis.** The Pirate's backbone is a thick, blue-anodized, countersunk aluminum plate. The slots for the engine mounting screws have also been countersunk. As they are on most 1/8-scale buggies, the engine and fuel tank are on the left-hand side of the chassis; the servo tray and receiver box are on the right. The engine is securely attached to the chassis by two finned adjustable mounts. Huge front and rear braces have been added to reduce chassis flex.

• **Suspension.** Upper and lower A-arms are used on the truck's front end to hold a cast steering knuckle. To adjust front caster, the short upper A-arm can be shifted back and forth on its hinge pin. In the rear of the truck are lower H-type suspension arms with a threaded-rod upper link. Aluminum braces prevent the lower arms' inboard hinge pins from spreading when the truck takes a hard hit, and front and rear swaybars help minimize chassis roll—that's something you don't usually see on these big monsters. Large, aluminum, blue-anodized, oil-filled coil-over shocks are mounted on thick aluminum shock towers. There are plenty of adjustment options; each shock tower has two upper mounting positions, and the front lower arms also have two shock positions. The rear upper link has two inboard mounting positions on the rear shock tower, and the lower rear arm has three mounting positions for the shocks.

• **Drive train.** Unlike the OFNA Monster Blazer, which has tall gearing intended for a buggy, the Pirate has an oversize spur gear that considerably lowers the truck's gear ratio. The Pirate has huge, heavy tires, and the low ratio spares the engine from being overstressed. The large center gear rides on a solid steel shaft instead of on a center differential as do most 1/8-scale buggies. The shaft is also home to a large, vented steel disc brake that gets squeezed by a padded caliper, and tiny springs keep the pads away from the disc when on the throttle. Since there is no center diff, only one disc is required for 4-wheel braking. The center drive/brake assembly transfers power from the engine to the front and rear diffs through dogbones. A set of helical-cut steel gears spins the differentials at the front and rear of the truck. You will find a set of planetary gears inside the differential



The large, vented disc brake slows the truck down. Check out the spacers on the center diff mounts; they allow the rather large spur gear to clear the chassis and center diff top plate.

housings. Dogbones drive the tires in the rear while CVA joints drive the front tires.

• **Steering.** Twin-bellcrank steering with a built-in servo-saver turns the truck. The two bellcranks pivot on bronze bushings and are connected by a drag link constructed of plate aluminum. The steering arm on the servo-saver has three mounting positions to choose from; using the outer hole will make it easier for your servo to turn the big tires. The threaded steering tie rods are adjustable, but they are not turnbuckles, so toe adjustments require minor disassembly. Since this is not a racetruck, however, toe-in should be a set-it-and-forget-it affair.

• **Engine and accessories.** The Monster Pirate does not include an engine, so I installed a Picco .21 (see "Test Gear" for details). The rest of the support items required for the engine are part of the kit. A cast pipe and manifold, manifold spring and exhaust coupler save you an expensive trip to the hobby shop, and a 3-shoe clutch is also part of the engine hardware package. A plastic, foam-element air filter with silicone snorkel-type extension is included to keep the engine breathing easy. Fuel is carried in a large-capacity, flip-top tank (thankfully primer-less, for less chance of air leaks), and attractive finned engine mounts complete the power delivery system.

• **Body, wheels and tires.** The truck's body is similar to the one used on the smaller Pirate 10 truck. The extended-cab design features a sunroof, antenna, roll bar with lights, side mirrors and windshield wipers. OFNA supplied its only sample of the body for our test, and it was too "precious" for me to beat on. To get the job done, I mounted a Pro-Line* Chevy Silverado body custom-painted by Motion Graphics.* The real star of the show is the tires; this truck has some mighty big shoes. Most monster trucks go with scale bar treads, but the Pirate's have a unique block-tread design. Each tire's carcass is supported by a large foam tire insert that comes standard in the kit. The tires are mounted on large white rims and are mounted on buggy-type 17mm hex hubs.



Helical-cut gears are used at each end of the truck. These gear teeth can take quite a bit of abuse with minimal breakage. Inside the differential housing is a set of planetary gears. This combination makes these differentials bombproof!

Hitec Lynx 3D transmitter.

When I run a nitro-powered car, I like to use a radio that has a lot of adjustments. The Hitec* Lynx 3D has plenty of them, and it's reasonably priced. The radio comes with a DCX dual-conversion receiver—the perfect candidate for a nitro-burning truck. The transmitter signal is sent through two filters instead of one, and this provides better reception.

Hitec HS-605BB throttle servo.

A Hitec HS-605BB servo handles the throttle and braking chores. Not much muscle is required to open and close the carburetor on the engine, but some muscle is needed for braking. This servo has plenty of power to pull the reins on this heavy monster, and that's a good thing!

Hitec HS-945MG steering servo.

The truck has large, heavy tires, so I needed something that was strong enough to show those big treads who's boss. Hitec's HS945MG servo, with a claimed 148 ounces of torque, was a good choice for this job. By the way, that's "MG" as in "metal gear."

Byron 20-percent race fuel.

I filled my fuel tank with Byron* 20-percent race fuel, which has been kind to my other engines. I ran the Monster Pirate all day long on the Byron juice without any trouble.

Orion 900mAh receiver battery.

The radio box has space for a 5-cell receiver battery, so I chose an Orion* 900mAh battery for the job. The high-capacity cells are perfect for high-drain, heavy-duty servos, and recharging beats tossing out alkalines any day.

Picco .21 engine.

An engine is not included with this kit, so I chose to install a new OFNA*/Picco* .21 engine. It has a claimed output of 2.1hp and features ABC construction and a two-needle slide-type composite carburetor. This engine has enough power to spin all four tires! The engine we received is a pre-production unit that has a large, purple-anodized head for maximum cooling; the final production engines will have blue heads.

TRACK TEST OFNA Monster Pirate



Here is the body that comes with the kit. It has lots of accessories that really dress it up. It's modeled on a Toyota extended-cab pickup.

PERFORMANCE

I had never run an OFNA/Picco engine, and I didn't know what to expect. I set the low- and high-speed needles to the recommended settings and turned the engine over. It immediately roared to life. When it had been properly broken in, I headed down to Xtreme R/C in New Milford, CT, for some fun. I gave the engine a little tweaking and put it down on the track. Just looking at the truck and knowing its weight, I didn't expect it to be very nimble. I nabbed the throttle and was very impressed with the truck's acceleration; it spun all four tires easily and took off down the track.

I was very pleased with the truck's overall speed. Steering it at high speed was a little hairy; the servo works hard to turn the tires at a low speed, and it has to work even harder at high speeds.

A day at the track wouldn't be complete without getting some air under the truck, so I headed over to the jumps. The truck's low gearing made it easy to get some air. Coming off a jump, I was able to pull a massive wheelie if I hit the throttle at just the right point. While I was driving the truck, I heard a crunching noise. After a quick inspection, I found that one of the front universals was coming out of the drive cup on the front differential when the suspension was unloaded. The drive bone had actually worn down the face of the drive cup, and this made it even easier for the bone to fall out. This problem can be solved by adding spacers to the inside of the front shocks to prevent the suspension from unloading too much. The truck does not have a center diff, so I pulled out the front universals and ended the day using only two-wheel drive. That cut down on the truck's climbing ability, but I still had fun.

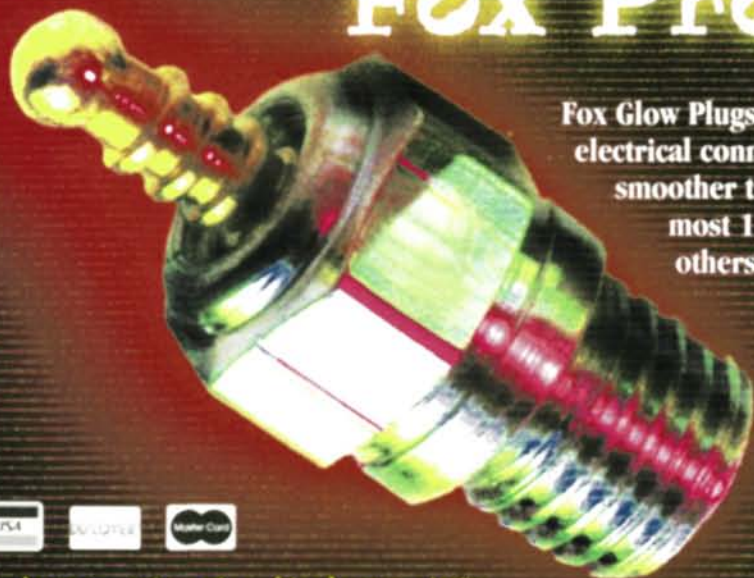
THE VERDICT

When I first saw this truck, I thought it was just another 1/8-scale buggy with monster truck tires. Boy, was I wrong! I was very happy with the way this truck was laid out. Its low gearing and solid center-drive assembly make the truck seem even more powerful. If you are into big monster trucks with tons of power, check out the OFNA Monster Pirate.

**Addresses are listed alphabetically in "Featured Manufacturers" on page 216. ■*

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**TRACK
TEST**
1/10-SCALE NITRO

Thunder Tiger TS-4n

A fast, reliable, and well-equipped entry to the TC scene by Stephen Bess

If you're a nitro car enthusiast, chances are you either already own a nitro sedan or are considering buying one. Sedan racing is spreading like wildfire into parking lots all across the country, and who could be surprised? A wide variety of nitro sedans—from entry-level RTR kits with fully assembled rolling chassis and installed radio gear to unassembled competition-level kits with highly adjustable suspensions—is currently available. But what about racers who are looking for the ease of a factory-assembled kit combined with the adjustability of the higher level cars? Enter Thunder Tiger's* new TS-4n nitro sedan—a totally new platform by RC guru Franco Sabattini, designer of the successful EB-4 1/8 off-road buggy. The 90-percent assembled car arrives with a pull-start engine and boasts an impressive list of race-ready features. How does the TS-4n fit in among the rapidly growing nitro sedan field? Let's check it out.

PHOTOS BY WALTER SIGAN



DATA CENTER

VEHICLE TYPE 1/10-scale nitro-powered 4WD touring sedan

BEST BUYER Beginner to intermediate nitro-sedan enthusiasts

KIT RATINGS (poor, satisfactory, good, very good, excellent)

Instructions Satisfactory

Parts fit/finish Very good

Durability Very good

Overall performance Very good

SPECS

SCALE 1/10

LIST PRICE \$249.99

STREET PRICE \$215

DIMENSIONS

Wheelbase 10.43 in. (265mm)

Width (F/R) 7.64/7.87 in.
(194/200mm)

WEIGHT

Total w/radio gear

(no fuel) 53 oz. (1,500g)

CHASSIS

Type Double deck

Material Aluminum upper and lower decks

DRIVE TRAIN

Type Triple-belt 4WD

Primary Clutch bell/spur

Drive shafts (F/R) Universal shaft/dogbones

Differentials Bevel-gear diff pulleys

Final drive ratio 6.77:1

Clutch Two-shoe centrifugal

Bearings/bushings Shielded ball bearings

SUSPENSION

Type (F/R) Double A-arm w/pivot ball joints/lower A-arm

w/adjustable upper control link

Damping Aluminum oil-filled shocks

WHEELS

Type 24mm one-piece plastic

TIRES

Type Thunder Tiger V-Touring

ENGINE AND ACCESSORIES

Engine Thunder Tiger Pro-12BZX

Carb Two-needle rotary

Pipe Thunder Tiger molded plastic w/cast manifold

Starter Pull-start

Fuel Blue Thunder

Race Formula 20%

RADIO GEAR (not included)

Transmitter Futaba Magnum

JR 2-channel AM

Steering/throttle servos Futaba S9304/S3003

LIKES

- Highly adjustable suspension design.
- Low-CG design provides very neutral handling.
- Plenty of performance for the price.

DISLIKES

- Instructions are adequate for experienced builders but need to be improved for beginners.
- Suspension setup is difficult without proper tools.

TRACK TEST Thunder Tiger TS-4n



Thunder Tiger selected a highly adjustable suspension system for the TS-4n. Pivot balls enable you to adjust track and camber, while the spacers on the upper inside hinge pin allow caster adjustment. The wheels slide onto cast hex adapters.



YOU'LL NEED

- 2-channel radio w/steering & throttle servos ■ nitro fuel
- glow-plug igniter ■ polycarbonate-compatible paint ■ CA glue
- thread-locking liquid ■ silicone shock oil ■ silicone diff oil
- camber and toe-in gauges (highly recommended)

The TS-4n sports a pulley-shaft stabilizer. Ball bearings support the rod ends, and you can adjust the tie rod to reduce slop. The car is equipped with a single speed—great for short tracks.



The pivot-ball suspension used in the rear is also very adjustable. A ball and socket link the arm to the hub; track and toe can be adjusted here as well. The suspension is damped by aluminum oil-filled, coil-over dampers.

building & setup tips

The TS-4n arrives 90 percent assembled, so I didn't expect a huge instruction manual. However, the instructions leave out far too much for anyone but the experienced hobbyist. Thunder Tiger lists thread-locking liquid in the "Required items for completion," but it doesn't tell you which screws to apply it to and did not apply any to the screws already installed. Note below where thread-lock is required. Be patient and prepare to spend a while setting up and decaling the car.

The "Set-up" section on page 12 provides an adequate overview of each suspension adjustment. I set up the suspension according to Thunder Tiger's recommendations with 30WT oil in front and 20WT in the rear. I also chose to fill the front and rear diffs with 1000WT silicone oil instead of grease. I used an RPM* camber and toe-in gauge to set front and rear camber to -2 degrees and front and rear toe to -1 and -2 degrees, respectively. I find this provides good balance between steering and power delivery.

Shock assembly. Assembly is straightforward, but don't forget which pistons you've installed in each shock. The two-hole pistons go in the front shocks, while the three-holders go in the rear.

Pipe installation. Before installing the tuned pipe on the chassis, apply some medium-strength ("blue") Loctite to the four engine-mounting screws. While you're there, also hit the header bolts with Loctite. Finally, flare the edges of the metal header before you install the rubber coupler to help prevent the header from falling off.

Pressure-line installation. The short tubing included with the kit foamed the fuel and provided so much pressure that fuel spewed out from under the filler cap at high



FEATURES

rpm. To fix this, loop a longer piece of tubing around the tank from the pressure fitting to reduce exhaust pressure.

Engine tuning. The manual offers no help in this area. Fortunately, you can start the BZX up with its box-stock carb setting. After running this rich setting for a few tanks, you can begin to lean out the high-end needle for best performance. Just back the needle out an $\frac{1}{8}$ turn once you've found the optimum setting; a slightly richer setting will keep the engine cooler and extend its life. When you have established a good high-needle setting, lean the bottom end out (the needle is well hidden!) in small increments until acceleration is strong and the engine temperature stabilizes at idle. To make needle adjustment easier, I cut the tip off a small screwdriver and attached a pinion gear on the end as a handle. My homemade mini screwdriver makes it easy to get at the needle.

Body finishing. My kit included a highly detailed Alfa Romeo body that requires plenty of decaling time. Pre-fit the decals on the body before you apply them, and go slowly; some decals must go under others, so be sure to apply them in the correct order! The decals are large, so use window cleaner to slide them around before you press down. The Selenia decals on my car were a little temperamental; no matter how carefully I applied them, there are still some bubbles and wrinkles underneath. Finally, make sure you cut air vent holes in the front, driver-side and rear windows to provide the engine with cooling air; here again, the instructions say nothing of cutting these holes, but failure to do so could overheat and ruin your engine!

• **Chassis.** The TS-4n's double-deck, fully countersunk 2.5mm aluminum chassis is gold-anodized and very sturdy. Its upper deck and rear T-brace, constructed of 2mm aluminum instead of molded plastic, add flex resistance. Ample space is allowed for radio gear, and the radio plate can be easily removed for cleaning. The engine, radio gear and fuel tank are all strategically placed on the chassis to provide a low center of gravity (CG) for better handling. An included transponder mount is installed on the upper deck—an obvious indicator that Thunder Tiger expects the car to be raced.

• **Drive train.** A 3-belt drive system propels the TS-4n. Both the front and rear four-gear differentials may be filled with heavy silicone oil to alter diff action, adding to adjustability. The front and rear plastic diff housings incorporate adjustable belt tensioners to take up any belt slack. The TS-4n transfers power from the diffs to the wheels via universal drive shafts up front and steel dogbones in the rear. For extra drive-train strength, a ball-bearing-supported side belt brace is included (an option on most sedans). To reduce friction and maintenance, the entire drive train rides on a full set of high-quality shielded ball bearings.

• **Suspension.** The TS-4n is particularly well equipped here. Every adjustment a racer could want is possible. All of the suspension parts are molded of fiber-reinforced plastic that is light and flex-resistant. Up front, upper and lower A-arms with pivot-ball steering hubs allow easy camber changes. Front width is adjustable from 194 to 200mm, and caster can be set at 6, 11 and 16 degrees by changing the placement of three plastic C-clip spacers on the upper hinge pins. The TS-4n's steering setup consists of dual bellcranks and an integrated, spring-loaded servo-saver with adjustable tension.

Rear suspension adjustments are equally numerous: rear width is adjustable from 196 to 200mm. A turnbuckle-style bolt inside the rear lower A-arm adjusts rear toe angle, and a simple twist of the turnbuckle upper links adjusts camber.

Four aluminum-body shock absorbers damp the TS-4n's suspension, and Thunder Tiger includes two-hole pistons for the front and three-hole pistons for the rear shocks. Shock oil is intentionally omitted to allow for individual preference. To adjust ride height, the TS-4n includes several shock spacers as well as large aluminum shock towers with various shock and camber-link mounting holes that allow further tuning possibilities.

• **Engine and accessories.** The pull-start .12BZX engine features ABC construction and a rotary-barrel-style, dual-needle carb. This carb has adjustable high- and low-end needle valves to help eliminate the chance of the carb loading that is prevalent among single-needle carbs. I initially overlooked the low-end needle valve, however, because it is deeply hidden inside the throttle-arm opening. A dual-element air filter, an aluminum exhaust header and a plastic tuned pipe make up the exhaust system.

A long, low-mounted fuel tank has the standard 75cc capacity and contributes to a low CG. For better sealing, the tank doesn't have a primer pump, and the pressure fitting is on the tank's lid. The fuel tank also has an integrated in-tank fuel filter.

• **Body, wheels, and tires.** The TS-4n kit includes standard 24mm gray mesh wheels with sticky V-tread tires and foam inserts. The wheels are mounted on "sedan hex" 12mm aluminum hubs. My TS-4n kit included the Alfa Romeo body with pre-cut window masks and a complex pre-cut decal sheet that allows a nearly perfect reproduction of the Italian Selenia motor-oil-sponsored racecar.

Futaba Magnum JR 2PCKA AM transmitter, receiver and servos

I raced several seasons with this Futaba® AM transmitter without a single glitch. Endpoint adjustments, steering ATV and servo-reversing make this radio a great match for my nitro sedan. The TS-4n is light enough for the standard S3003 servo to provide ample braking power. The S9304 steering servo features dual ball bearings and a coreless motor that keep the TS's front wheels pointed precisely where I want them.

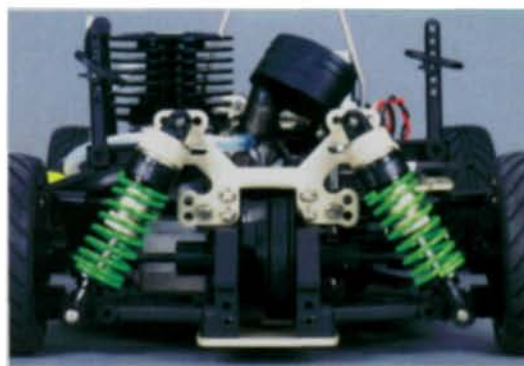
Blue Thunder 20 percent Race Formula fuel

I've raced Blue Thunder® for years with excellent results. The high-quality castor/synthetic oil blend keeps the engine cool, reliable and powerful, tank after tank. And if it's good enough for Ron Paris, it's certainly good enough for me.



Team Losi certified silicone shock fluid

Color-coding and large numbers on the cap make Team Losi's® shock oil easy to identify; plus, the oils keep their viscosity regardless of temperature.



Several shock locations are provided on the shock tower and lower arms. Notice there are also several camber-link mounting positions on the shock tower and hubs; lots of tuning options here.

PERFORMANCE

After a couple of rich break-in tanks, I began to lean out the high end and put the TS-4n through some agility exercises on a parking-lot roadcourse. From the very first tank, I noticed how balanced the TS-4n felt. Through the turns, the car exhibited a little on-power push—great for less than perfect drivers. A little jab of the brakes brought on more steering whenever needed. The car's stability through the turns was inspiring; before I knew it, I was full throttle through every turn. Obviously, I wasn't going for great lap times with this driving style, but it did show off the TS-4n's balance. Just for kicks, I brought the car to top speed and slammed the wheel to the right and left. The tail barely kicked out, and the TS-4n quickly resumed its composure to take in the turns without drama. I was able to spin the car, but I had to drive like a maniac to do so. Such poise will inevitably offer confidence under race conditions.

I was also impressed with the peppy .12BZX engine; it fired up immediately and provided ample power with great top end. Initially, the car wouldn't reach top speed without "missing," which is typically caused by a lean high-end setting. A measurement with my Raytek probe showed a running temperature around 200 degrees F, which indicated a too-lean setting was not the problem. The culprit was the short, stock pressure line, which I replaced with a longer piece of tubing (see "Building and setup tips") to fix the "missing" condition. This was the only modification I found necessary to bring the TS-4n up to top speed.

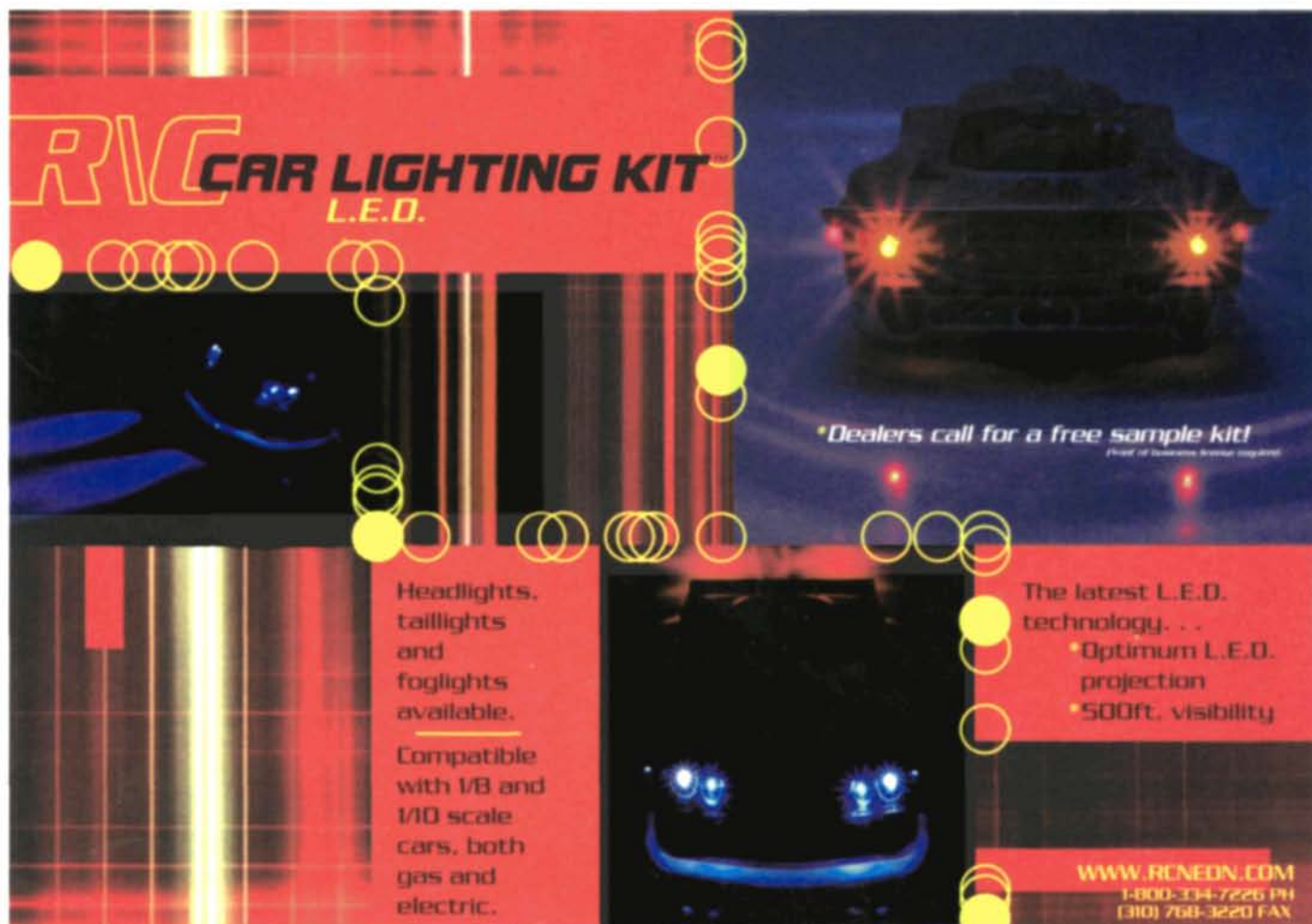
After I leaned out the high-end needle, the carb seemed to load up during off/on throttle jabs. The problem was a rich low-end needle setting, but I had assumed that the BZX had a single needle carb! I later discovered that the low-end needle was indeed hidden

deeply inside the throttle arm and was able to lean out the bottom end. A few small turns solved the loading problem, and the engine became much more responsive off the line and during throttle jabs.

THE VERDICT

I'm very impressed with Thunder Tiger's new nitro sedan. My only complaints revolve around the lack of instructions. Considering that the TS-4n is aimed at hobbyists with a beginner's skill level, I'm disappointed that important instructions for proper engine tuning, body trimming and chassis finishing have all been omitted. But these problems are minor when compared to the overall performance and value of the car. The TS-4n includes many high-quality parts that are options on many similarly priced cars (front universals, turnbuckles, tuned pipe and header, ball-bearing side brace). According to Thunder Tiger, the TS-4n will have 80-percent parts compatibility with future kit releases as well as upgrade packages. This means you can add performance parts to remain competitive with the upcoming full-out racing version, if you so choose. With a little guidance and patience while preparing the car, beginners will have no problems getting this sedan ready for parking-lot fun. The included engine, with the tuned pipe and header, provides more than enough power to stay competitive, and the suspension is adjustable for nearly any track. Plus, the TS-4n is a load of fun to drive! When set up correctly, this car will reward it's driver with predictable, balanced handling. For an expected street price of around \$200, the Thunder Tiger TS-4n currently represents one of the best values on the nitro touring sedan market.

**Addresses are listed alphabetically in "Featured Manufacturers" on page 216. ■*



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**TRACK
TEST**
1/10-SCALE ELECTRIC



Schumacher CAT3000

The motor is in the middle for a front-running 4WD

by Derek Buono

Four-wheel-drive off-road has come full circle in the past couple of years. Some newcomers have sparked some much needed fire in this elite class, but if it weren't for companies such as Schumacher*, which has stood by 4WD since the early days, the class might have become the dinosaur of RC racing—doomed to extinction. Building on a winning record, Schumacher has unleashed its latest feline for the millennium—the CAT3000. Could this latest mid-motor CAT be a challenger for the title of king of the jungle?

PHOTOS BY WALTER SIDAS



DATA CENTER

VEHICLE TYPE 1/10-scale, electric, 4WD off-road buggy

BEST BUYER Serious racer looking for excellent 4WD performance

KIT RATINGS (poor, satisfactory, good, very good)

Instructions satisfactory

Parts fit/finish good

Durability good

Overall performance excellent

SPECIFICATIONS

SCALE 1/10

LIST PRICE \$449.49

DIMENSIONS

Wheelbase 10.83 in. (275mm)

Width 9.84 in. (270mm)

WEIGHT

Total (RTR) 56 oz. (1,588g)

CHASSIS

Type Double deck

Material Carbon composite

DRIVE TRAIN

Type Dual belt

Primary Pinion/spur

Drive shafts (F/R) Universal

Blade/MIP CVDs

Differential(s) Ball

Bearing type Metal shielded (16)

SUSPENSION

Type Lower arm w/adjustable upper link

Damping (F/R) Oil-filled, coil-over shocks

WHEELS

Type 1-piece dish

TIRES

Type (F/R) Mini-pin/mini-block

ELECTRONICS

Transmitter Airtronics M8

Steering servo Airtronics 94758

ESC LRP V6

Motor Team Orion 12T chrome

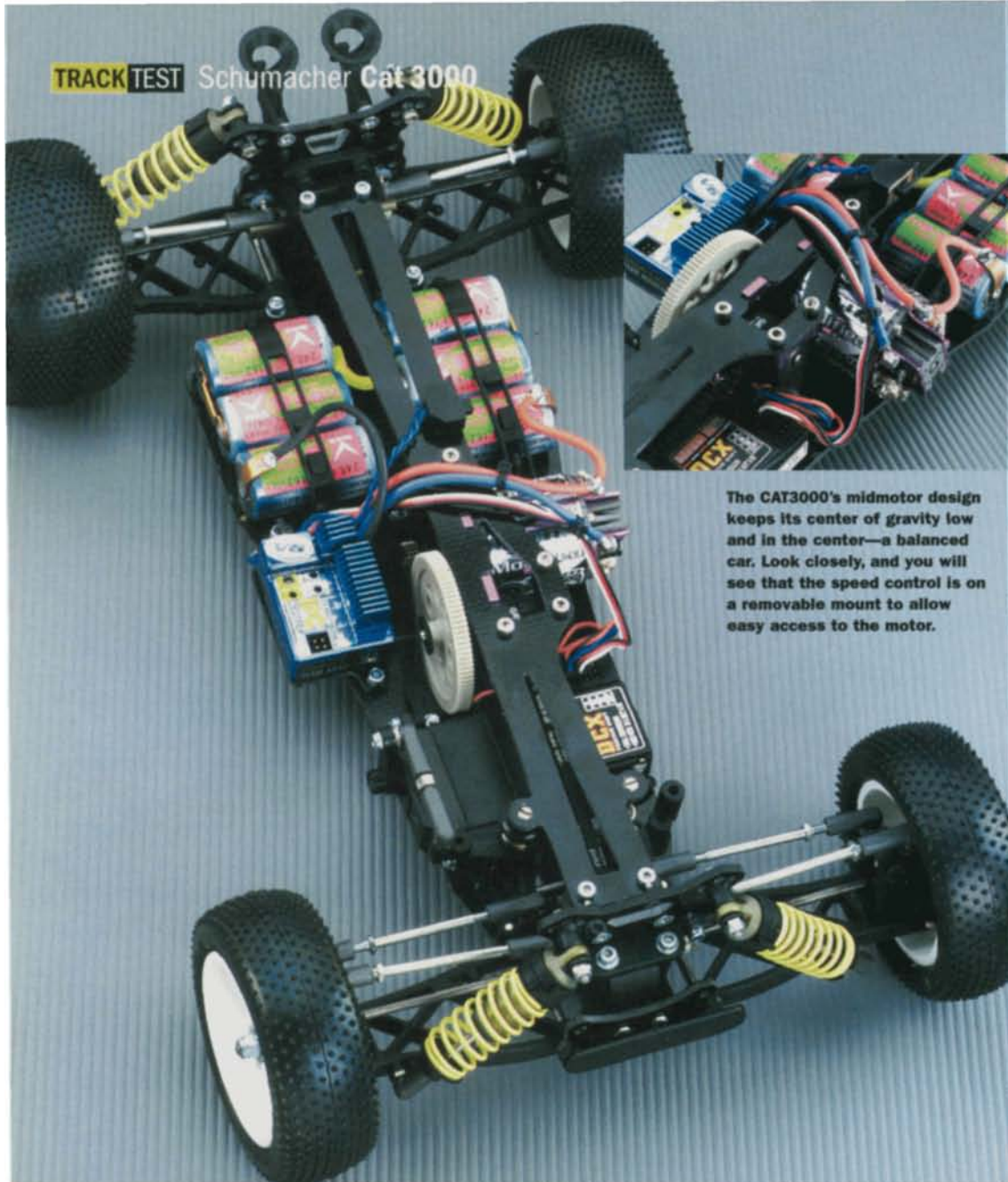
LIKES

- Sweet handling.
- Easy maintenance.
- The new body is a great improvement on previous designs.

DISLIKES

- Instructions need to be improved.
- The shocks' foam volume compensators are difficult to assemble.
- Lateral flexing seems excessive.

TRACK TEST Schumacher Cat 3000



The CAT3000's midmotor design keeps its center of gravity low and in the center—a balanced car. Look closely, and you will see that the speed control is on a removable mount to allow easy access to the motor.

building & setup tips

BUILDING

Although the CAT's instructions feature plenty of computer-generated illustrations, they lack some of the helpful information that other manufacturers include. In places, the instructions were hard to figure out, and I frequently couldn't tell which hole was being used when installing hardware. If you are not paying attention, it could get messy. Read ahead and look at the drawings given in the next step to be sure that you have the parts in the correct positions.

Here are a couple of the tricky steps I encountered:

Transmission. I wasted almost an hour on the first assembly step. The instructions on assembling the clicker assembly are not clear about which side of the roll pin the spring is supposed to be on. In the instructions, it shows the spring on the same side as the gear when, in fact, it should be on the opposite side.

Shocks. Saturate the foam volume-compensation insert with oil before you install it, or it will be tough to install the plastic cap without distorting it.

Rear arms. The rear arms are labeled "Left" and "Right" but they are installed in reverse: the right is the left and vice versa. Remember this when you assemble the rear end.

SETUP

During my initial run, I was generally pleased with the car's handling, but it was apparent that the suspension needed to be stiffened. After some tinkering with pistons and oils, I decided that my best bet would be to call Schumacher. Team Driver Marcus Luebke quickly sent me details of his 2000 Winterchamps setup—one that earned him the only non-Losi spot in the A-main.

YOU'LL NEED ■ 2-channel radio ■ Steering servo ■ ESC ■ Battery ■ Motor ■ Charger ■ Pinion ■ Polycarbonate-compatible paint

FACTORY OPTIONS ■ Carbon-fiber shock mounts (F/R)—part no. U2268T (short)/U2269U (medium) ■ Alloy transmission housings (upper/lower)—U2287Q/U2286P ■ Carbon-fiber chassis—U2256D ■ Carbon-fiber top deck—U2257E ■ Alloy battery posts and carbon-fiber straps—U2218H ■ Torque distribution system—U2102V ■ Slipper clutch—U823 ■ Tungsten-carbide 4mm diff balls—U1475D ■ Speed Flex drive belts (F/R)—U2279F/U2280G ■ 15T alloy rear pulley—U2019W ■ Power rollers (F/R)—U2283K/U2284M ■ Titanium stepped pivot pin—U1985 ■ Anti-roll bars (F/R)—U2288R/U2289T ■ Wide front bumper—U1566B ■ 5° caster blocks—U1532T ■ Rear hub carriers (0°, 1°, 2°)—various ■ Purple alloy shock-seal housing—U1818U ■ One-piece shock pistons—U2143U ■ Ball-bearing steering—U1248V

Left: the simple, effective front end provides tons of usable steering and is very easy to maintain. Turnbuckles allow quick toe-in and camber adjustments.

Right: Schumacher includes a rear set of MIP CVDs to add rear traction. Attached to all of the universals are "Blade" adapters to reduce slop and outdrive wear.

KIT FEATURES

• **Chassis.** Schumacher is one of the last manufacturers to offer an off-road competition kit with a woven-composite chassis—in this case, “S1,” which is a fiberglass-like composite. The main chassis is slotted to accept saddle packs, and it also has an opening that allows the motor to sit lower. Unlike its cousin the Axis, the CAT has its batteries positioned symmetrically on both sides of the chassis for equal weight distribution.

All the chassis screw holes are countersunk, so there's no chance of the screws being damaged. The upper deck stiffens the chassis and almost eliminates longitudinal flexing. There is lateral flexing, but this could be reduced by using the optional carbon-fiber chassis. The CAT3000's chassis design is similar to that of the Axis, but it has been lengthened to add stability over the rough stuff.

• **Drive train.** With a mid-motor design, the two-belt drive train operates smoothly and efficiently with minimal maintenance. A slipper clutch is not included, but a one-way “ratchet-style” layshaft pulley reduces friction when off power by letting the front wheels freewheel. A rear belt tensioner incorporated in the purple motor mount makes belt skipping a thing of the past. The lightweight alloy differential outdrives reduce rotating mass for quicker acceleration. The diffs come assembled and are as smooth as glass right from the factory. MIP CVDs are included for the rear but not for up front; instead, universal swing shafts send power to the front wheels. Both sets of axles use Schumacher's “Blade” design to eliminate slop and extend wear at the diff outdrive junction.

A set of 16 ball bearings makes this CAT one efficient ride. New are larger rear wheel bearings to ensure longer life and less slop.

• **Suspension/steering.** Molded front and rear suspension arms are mounted on hinge pins with all-new suspension geometry that enhances the CAT's nimble performance. The front arms' hinge pins are angled to provide kick-up. With adjustable toe-in blocks and rear anti-squat, this car's tunability is topnotch. If you can't dial this car in to a track, it's time to pick up another sport. I used the recommended settings of 3 degrees of rear toe-in and 1.5 degrees of rear anti-squat. Zero-degree toe-in blocks are also included.

Schumacher's hard-anodized pro aluminum shocks provide smooth, consistent damping at all corners. As a tuning starting point, I set the variable pistons with three holes in all four shocks. Inside the shocks are double O-ring seals and a foam, volume-compensation insert that is designed to eliminate air from the shock oil. The shocks may be adjusted by using stackable spring tensioners. This method ensures equal tension as long as you have

the same number of spacers on each side.

• **Body, wheels, and tires.** The one-piece dish rims are a welcome change from the 3-spoke wheels that usually come in Schumacher kits. The kit tires are Schumacher's Silver compound with medium foam inserts. The fronts are mini-pins while the rears sport a mini-block pattern. The body is also a break from the rounded “space” look and has a much friendlier and more conventional racing design.

PERFORMANCE

My CAT3000 debuted at JP's Hobby Shop in Derby, CT. The CAT breezed through the track's good-size jumps and ton of ruts with ease. Cornering was not a problem; taking the small tight turns was effortless. After getting a feel for the car, I was able to push it, and I found it to be very responsive. I did have to make a few changes, the first being to swap the pistons in the front to 2-hole and to use 35WT oil. This perked up overall performance and made the CAT jump almost perfectly. The included tires seemed a good match for the track's sandy clay.

After a couple of packs and some extremely fast laps, I felt that the CAT3000 was ready to step up a league and head to a larger, more competitive track—Extreme RC in New Milford, CT. The CAT's silky smooth drive train was able to lay down some all of the Orion motor's horsepower. Through the turns, the car's steering was balanced; I was able to keep it in the line I chose. I did notice that it landed a little hard off jumps, but that didn't seem to cause any sort of handling problems. I decided that I would bypass further tuning and sponge a team driver's setup.

I contacted Schumacher factory driver Marcus Luebke, who quickly sent me details of his setup for the 2000 Winterchamps, in which his was the only Schumacher in the A-main. Up front, I used 45WT oil with gray springs and 2-hole pistons. I mounted the shocks in the no. 1 holes on both the arms and the shock tower. The camber link was left in the stock position. I set the front camber to 1 degree and put in 1 degree of toe-out. For the rear I used 35WT with yellow springs and 2-hole pistons. With these changes I headed back out and the car was dialed. I noticed that I was able to carry more speed through the corners and actually exit the corner even faster.

THE VERDICT

The CAT3000 is one of the best-handling 4WDs I have driven. As a huge fan of 4WD, I am looking forward to putting some serious time behind the wheel of Schumacher's latest feline. If you are in the market for a competition 4WD buggy, take a long, serious look at Schumacher's latest; it won't disappoint.

**Addresses are listed alphabetically in “Featured Manufacturers” on page 216. ■*

Airtronics® M8 radio

You read about it a million times. If you don't have one, you're missing out. I won't bore you with the comfort, the adjustability, the reliability and the list of features.

Airtronics 94158 steering servo

Big torque in a fraction of a second, and did I mention aluminum gears? The numbers may have changed, but this servo is one of my favorites.

LRP® IPC V6 ESC

It's not only the choice of top drivers, but it also comes in sparkly blue. LRP has a new 7.1 model, but there's still plenty of life in the V6.

Team Orion® matched V-Max 2000 cells

The CAT3000 requires a saddle pack, so I assembled a fresh set of Orion V-Max 2000 cells in the required 3x3 layout. Orion's copper battery bars are stepped to accommodate the +/- terminals and make their assembly simple and neat. There still isn't any match for the punch and run time of a 2000 pack—simply awesome.

Team Orion Chrome modified motor

Having opted for the 2000mAh batteries, I decided to go with a tamer motor (if you could call it that)—a 12-triple. The Chrome series modified has pattern winding and epoxy balancing to produce maximum horsepower. Snap-in surface-mounted capacitors are included to reduce radio noise. Coupled with the punch of the Orion cells, this motor was fast!

MARK'S HOP-UPS

- Carbon-fiber chassis
- Carbon-fiber top deck
- Fixed transmission
- One-way front pulley
- Belts (F/R)—4/6mm
- Front and rear power rollers
- Drive shafts (F/R)—Stock/MIP CVDs
- Motor—10-turn double
- Pinion/spur—16/89
- Battery—Orion 2000
- Pro-Line M3 Square Fuzzies (F/R)—8089
- Inserts (F/R)—Standard Pro-Line

**Marcus Luebke's
2000
WINTERCHAMPS
SETUP**

FRONT

Camber1°
Toe-in/out1° out
Anti-roll barNone
Caster5°

Shocks

Oil45WT
SpringGray
Piston2-hole
Length83mm

REAR

Camber1°
Toe-in/out3°
WheelbaseShort

Shocks

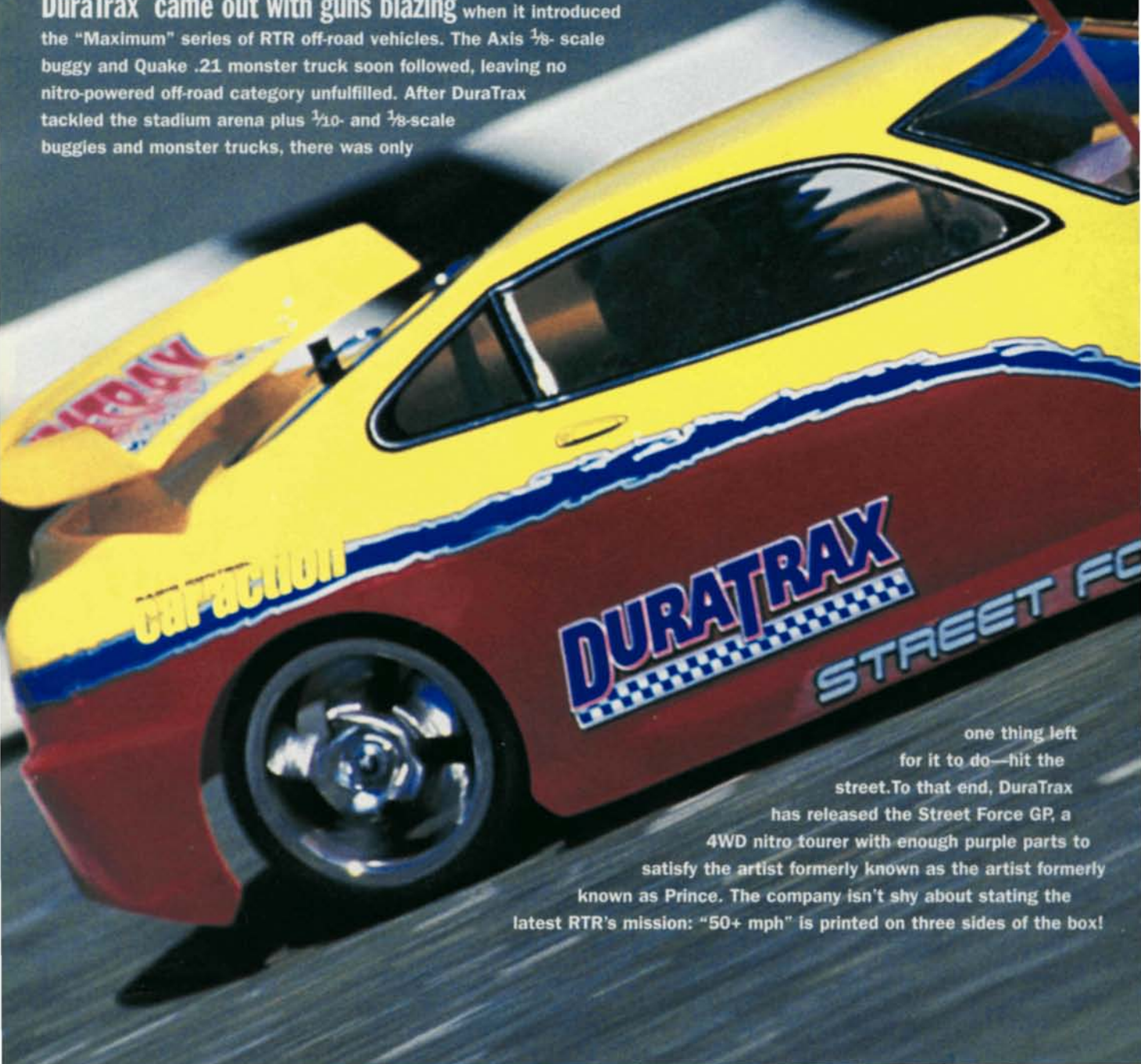
Oil35WT
SpringYellow
Piston2-hole
Length89mm

**TRACK
TEST**
1/10-SCALE NITRO

DuraTrax Street Force GP

We drive the "Maximum" street machine by Bob Hastings

DuraTrax' came out with guns blazing when it introduced the "Maximum" series of RTR off-road vehicles. The Axis 1/8-scale buggy and Quake .21 monster truck soon followed, leaving no nitro-powered off-road category unfulfilled. After DuraTrax tackled the stadium arena plus 1/10- and 1/8-scale buggies and monster trucks, there was only



one thing left for it to do—hit the street. To that end, DuraTrax has released the Street Force GP, a 4WD nitro tourer with enough purple parts to satisfy the artist formerly known as the artist formerly known as Prince. The company isn't shy about stating the latest RTR's mission: "50+ mph" is printed on three sides of the box!



Did it go 50?

We set up for a banzai run in the seclusion of a local park. This place has the smoothest pavement around (and plenty of it) and the tree cover provided some relief from the 90-degree-plus heat. Steve Pond stood by with the radar gun, while I made a few easy passes to warm up the engine. With everything dialed in to my satisfaction, we were set to go.

The first pass was an encouraging 46.3mph; Steve did some fine-tuning, and run number two peaked at 47.7mph. The third pass, after a little low-end adjustment: 48.4mph. The oppressive heat began to take its toll on the car, and the subsequent runs were not quite as fast. The humidity wasn't helping either; it's a notorious performance depressant for nitro engines. Unfortunately, we were stuck with the weather for a week and didn't get the opportunity to test under better conditions. I have no doubt the Street Force will break 50 with conditions that are even just slightly less terrible. But don't get to hung up on top speed as measured by a radar; the onlookers we attracted during the speed runs guessed the car's speed to be anywhere from 60 to 80mph!

PHOTOS BY WALTER SUDAS

DATA CENTER

VEHICLE TYPE 1/10-scale, nitro-powered, 4WD touring car

BEST BUYER On-road RC enthusiast of any skill level

KIT RATINGS (poor, satisfactory, good, very good, excellent)

Instructions Very good

Parts fit/finish Very good

Durability Very good

Overall performance Very good

SPECIFICATIONS

SCALE 1/10

LIST PRICE \$499.99

STREET PRICE \$295

DIMENSIONS

Wheelbase 10.2 in. (260mm)

Width 7.5 in. (190mm)

WEIGHT

Total, as tested 50 oz. (1,418g)

CHASSIS

Type Countersunk plate

Material 2.5mm T6 6061 aluminum

DRIVE TRAIN

Type Triple belt

Primary 2-speed pinion/spur

Drive shafts (F/R) Dogbone

Differentials Ball

Slipper clutch None

Bearing type Shielded ball

SUSPENSION

Type Lower A-arm with turnbuckle upper link

Damping Oil-filled coil-over shocks

WHEELS

Type One-piece, 2-inch plastic

TIRES

Type Treaded w/foam insert

ENGINE AND ACCESSORIES

Engine DuraTrax Velocity

.15 pull-start

Carburetor Rotary

Pipe Aluminum

Manifold Aluminum

ELECTRONICS (INCLUDED)

Transmitter Hitec Lynx 2-channel

Receiver Hitec HP-2RNB

Throttle servo Hitec HS-303

Steering servo Hitec HS-303

LIKES

- Truly ready-to-run (less fuel).
- Lots of purple-anodized parts.
- Very adjustable.

DISLIKES

- No instructions for cooling holes.
- Spur gear extends below chassis plate.

TRACK TEST DuraTrax Street Force GP

The Street Force GP is an impressive package: piped .15 engine, 2-speed tranny, countersunk chassis, and it takes only a few minutes to prepare it to hit the pavement.

All the chassis' screws are countersunk, with the exception of the steering-servo's rear mount.

The oil-filled plastic shocks have threaded preload clips to adjust ride height. Note the beefy Stress-Tech suspension components that carry a 6-month guarantee against breakage.

building & setup tips

The Street Force GP presented no challenges to get it up and running. I do recommend that you watch the included video on the care and feeding of the Velocity .15. The information is good basic nitro stuff that you should commit to memory.

Body. When you've extended the body posts and tightened their screws, mount the body so there's adequate tire clearance, then trim the body posts down to size; fishing-pole body posts scream "beginner!" Cut vent holes in the windshield to provide cooling airflow to the engine. You should also cut out the rear window so the air can flow out of the body. If you don't, the air flowing into the body tends to lift the rear of the car (trust me).

Add a bumper. A foam bumper costs less than ten bucks—cheap protection against any sudden stops, and it also supports the body. Without this added support, the front of the body flexes at higher speeds and will scrape the pavement.

Check the fasteners. Give the car a good once-over. Although everything was snug on my car, it takes only a few minutes to run through with an Allen key, Phillips-head screwdriver and a box-wrench to verify that you're road-ready. After you've run a few tanks of fuel, recheck the screws and nuts: engine vibration can loosen parts.

Ni-Cd tips. If you decide to swap the receiver's dry cells for rechargeable batteries, go to a 5-cell Ni-Cd pack instead of slipping 4AA Ni-Cds in place of the alkalines. The included alkaline 4-pack puts out 6 volts versus only 4.8 for a 4-cell Ni-Cd pack. The servos will be less powerful with less than 6 volts, and you'll reduce your car's radio range if you don't have enough juice.

YOU'LL NEED ■ Nitro fuel ■ Large parking lot, if you want to go 50.

OPTIONAL PARTS ■ Belt tensioner set—part no. DTXC6106 ■ Foam bumper—DTX6865 ■ Chassis 3.25mm 7076 T-6 aluminum—DTXC7026 ■ Clutch bell, 14T and 17T—DTXC7121; 15T and 18T—DTXC7122 ■ 2-speed clutch gear, 14T—DTXC7124; 15T—DTXC7125; 16T—DTXC7126; 17T—DTXC7127; 18T—DTXC7128; 19T—DTXC7129 ■ CVD drive shaft (2)—DTXC7280 ■ One-speed conversion kit—DTXC8290 ■ Graphite radio tray—DTXC8406 ■ Graphite shock tower (F/R)—DTXC9196/DTXC9253 ■ Stabilizer bar kit, 1.8mm—DTXC9415; 2mm—DTXC9416.

KIT FEATURES

• **Chassis.** The Street Force GP's lower chassis is anodized a bright purple and features folded edges in the rear to reduce flexing. All screws are countersunk, with the exception of the steering-servo's rear mount, which is a simple slot to allow servos of different sizes to be fitted—not that you'll need to monkey with it, since this is an RTR car. An aluminum brace anodized in the same high-fashion purple ties the reinforced nylon upper deck and the rear bulkhead together for a stiff overall feel. The upper chassis deck houses the battery mount, throttle servo and switch plate and serves as the receiver tray.

• **Suspension and steering.** The beefy suspension components are DuraTrax Stress-Tech plastic and are warranted against breakage for the first six months. The lower A-arms are tied to the bulkheads and hub carriers by single E-clip button-head hinge pins. Plastic coil-over shocks with threaded bodies and adjustable preload collars are included and factory-filled with 40WT oil. Adjustable turnbuckle camber links and tie rods complete the suspension package and provide greater adjustment (with greater convenience) than most other RTRs. To steer the Street Force GP, a pair of bellcranks with an adjustable, integral servo-saver are used.

• **Drive train.** The Street Force GP uses a 3-belt drive system with a long front belt and short side and rear belts; the setup is essentially the same as that of the well-proven Nitro RS4 series. Ball differentials are fitted front and rear. Gear diffs are more typical for RTR cars, as they require less maintenance and are more durable; but the lighter, more precise ball diffs can only help performance. Steel dogbones join the diffs to the hubs, and all the rotating parts spin on shielded ball bearings.

• **Engine and accessories.** The car's 75cc fuel tank with primer is properly plumbed with high-quality fuel tubing, and the purple-anodized aluminum manifold and tuned pipe are stock items as well. The engine spools up a finger-type, 2-speed transmission, and the clutch bell uses threaded-on pinion gears to facilitate easy gear changes down the road. For an "entry-level" car, the Street Force has a lot of pro-style features. Don't look for a Torq-12 here; the Street Force features the new Velocity .15 twin-needle engine with rotary carb, large heat-sink head and pull-starter.

• **Body, wheel and tires.** Like DuraTrax's other RTRs, the Street Force includes a painted and trimmed body. The yellow and orange body looks bland at first, but it comes alive with the supplied decals. If you're not into the generic Euro look, virtually any 190mm street body can be slapped right on. Factory-glued, treaded tires and gleaming chrome 5-spoke, twist-pattern wheels with foam inserts finish off the Street Force GP.



The Street Force GP features a 3-belt driveline fed by a 2-speed transmission; a side-belt tensioner is optional.

PERFORMANCE

The Velocity .15 started after a few pulls, and I let the car gargle with a rich fuel mixture through its first tank of fuel. After a few more fat tanks, I began to lean on the engine a bit. This Velocity .15 makes loads of power, and the car can cover a lot of distance in a short time—especially when that 2-speed kicks in. This left me with little doubt that the Street Force GP would be able to hit the 50mph mark when it came time for top-speed testing (see "Did It Go 50?"). Though the Street Force has gobs of power, the tires lack sufficient traction to really plant the car; they're meant for long wear, not super adhesion. The car is balanced in handling, but you'll have to learn to power slide through turns to get the Street Force around a roadcourse. They might not be the hot race technique, but tail-out turns are definitely fun.

THE VERDICT

DuraTrax has put together a solid RTR here; the Street Force GP is full of performance features, and it really is "ready to run"; the body is painted and trimmed, the radio is installed, all the batteries are included—there's even a fuel bottle and glow starter in the box. Performance is very good, the chassis is fully adjustable, and if it's speed you crave, the Street Force GP will gladly oblige. Add the generous 6-

All of the following items are included with the Street Force GP:

Hitec Lynx radio

The Street Force GP has the 2-channel Hitec Lynx AM radio onboard. I've been a fan of this radio for a while, even though it is budget priced, it has adjustable steering dual-rate. With this car's speed capability, it's nice to be able to dial out the steering for high-speed stability. As with other DuraTrax RTRs, transmitter and receiver batteries are included.

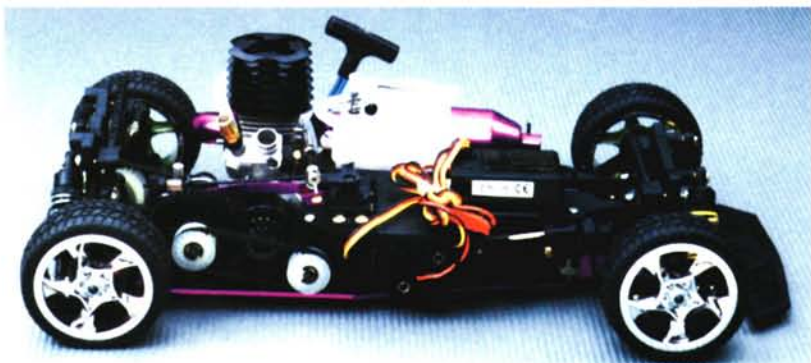


Hitec HS-303 servo

The Street Force GP has Hitec HS-303s for steering and throttle duties. The servos provide adequate power for their intended duties; I had no trouble steering or braking the Street Force.

DuraTrax glow igniter and fuel bottle

As far as I know, this is a first in RTRs: DuraTrax includes a "C"-size dry cell to power it, a molded plastic glow igniter and a fuel bottle with anodized neck. A new owner has to purchase only a jug of fuel (for our testing, we used 20-percent-nitro Red Alert).



Here's what's in the box; just extend the body posts, install the air filter and batteries (included), and put the body on; even the glow igniter and fuel bottle come with the Street Force GP!

month no-breakage warranty, and you have a nitro tourer that is as appealing as an easy-to-run first nitro car yet technically complex enough to satisfy more experienced gear-heads.

*Addresses are listed alphabetically in "Featured Manufacturers" on page 216. ■

Serpent, well-known for its on-road nitro racing prowess, caused a stir when it debuted its Impulse touring car late in 1999. It was the first competition car to derive its suspension and chassis design from proven on-road technology, and it represented the "next step" in the evolution of the nitro touring car. In fact, it was innovative enough to earn "Car of the year" status (see last month's issue). However, the Impulse was not the only racer bred from a winning on-road gene pool to hit the competition scene; soon after the Serpent hit the track, Mugen launched a nitro tourer (the MTX-2) based on lessons learned



PHOTOS BY WALTER SIDAS

HEAD to HEAD

SERPENT MUGEN M

from its own successful 1/10 on-road machine, the Avance. Racers took notice, and comparisons to the Serpent benchmark were unavoidable, and that is why we're pitting the cars against each other, head to head, to see which is the better machine. We'll save the results for the end, but we can tell you now that the Mugen MTX-2 and the Serpent Impulse are the best nitro tourers available. How do we know? See the latest edition of *Radio Control Touring Cars*, our annual all-touring special issue. We tested nine competition nitro tourers in all, with the Serpent and Mugen topping all comers; it's a must-read, if you're shopping for a new race rig.

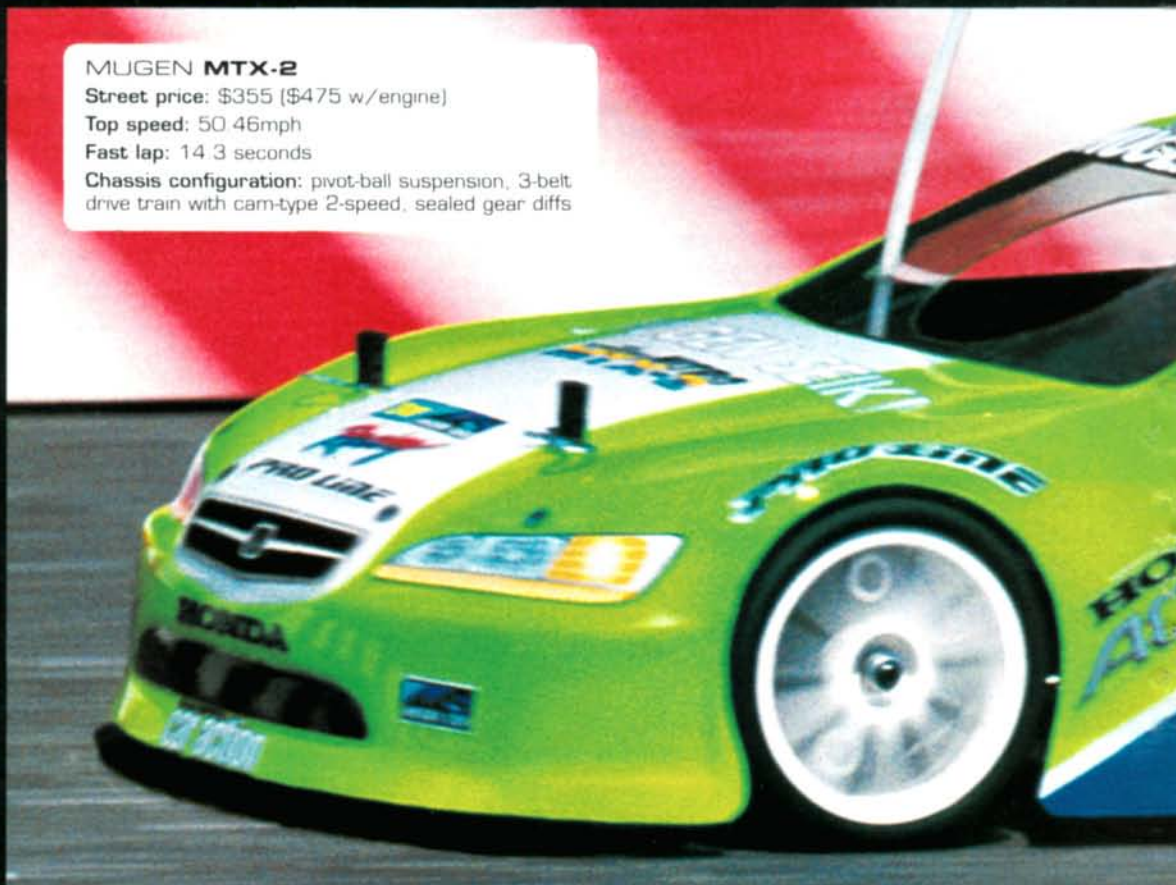
MUGEN MTX-2

Street price: \$355 (\$475 w/engine)

Top speed: 50.46mph

Fast lap: 14.3 seconds

Chassis configuration: pivot-ball suspension, 3-belt drive train with cam-type 2-speed, sealed gear diffs





SERPENT IMPULSE

Street price: \$265 (\$395 w/engine)

Top speed: 51.37mph

Fast lap: 13.9 seconds

Chassis configuration: pivot-ball suspension,
3-belt drive train, sealed gear differentials

IMPULSE vs. TX-2

by the staff of RC Car Action

Which on-road-inspired nitro tourer is best?



SERPENT IMPULSE

The Impulse is the first of a new generation of nitro touring cars and borrows from technology originally developed for the rigors of 1/10 fuel on-road racing. The result is a stout car whose nearest ancestor is a purebred nitro racing machine rather than a retrofitted electric touring car.

The Impulse features a narrow, thick-aluminum lower plate with a molded upper plate. The Impulse is available with a very powerful Mega version of a NovaRossi engine and fitted with a standard two-shoe clutch and a single-speed transmission. A triple-belt drive system feeds six-gear planetary differentials at the front and rear, and dogbones transfer power to the wheels. Damping is handled by molded shocks with threaded preload collars and externally adjustable valving.

ASSEMBLY

The Impulse is a car for serious racers. The four-corner, pivot-ball suspension dictates the use of more sophisticated setup equipment to get the maximum benefit from its design. Despite the extra challenges that result from the extra sophistication, the Impulse has adequate instructions for a car from a specialty manufacturer. They aren't detailed enough to walk a first-time nitro builder through the process, but they're clear enough for those with experience.

PERFORMANCE

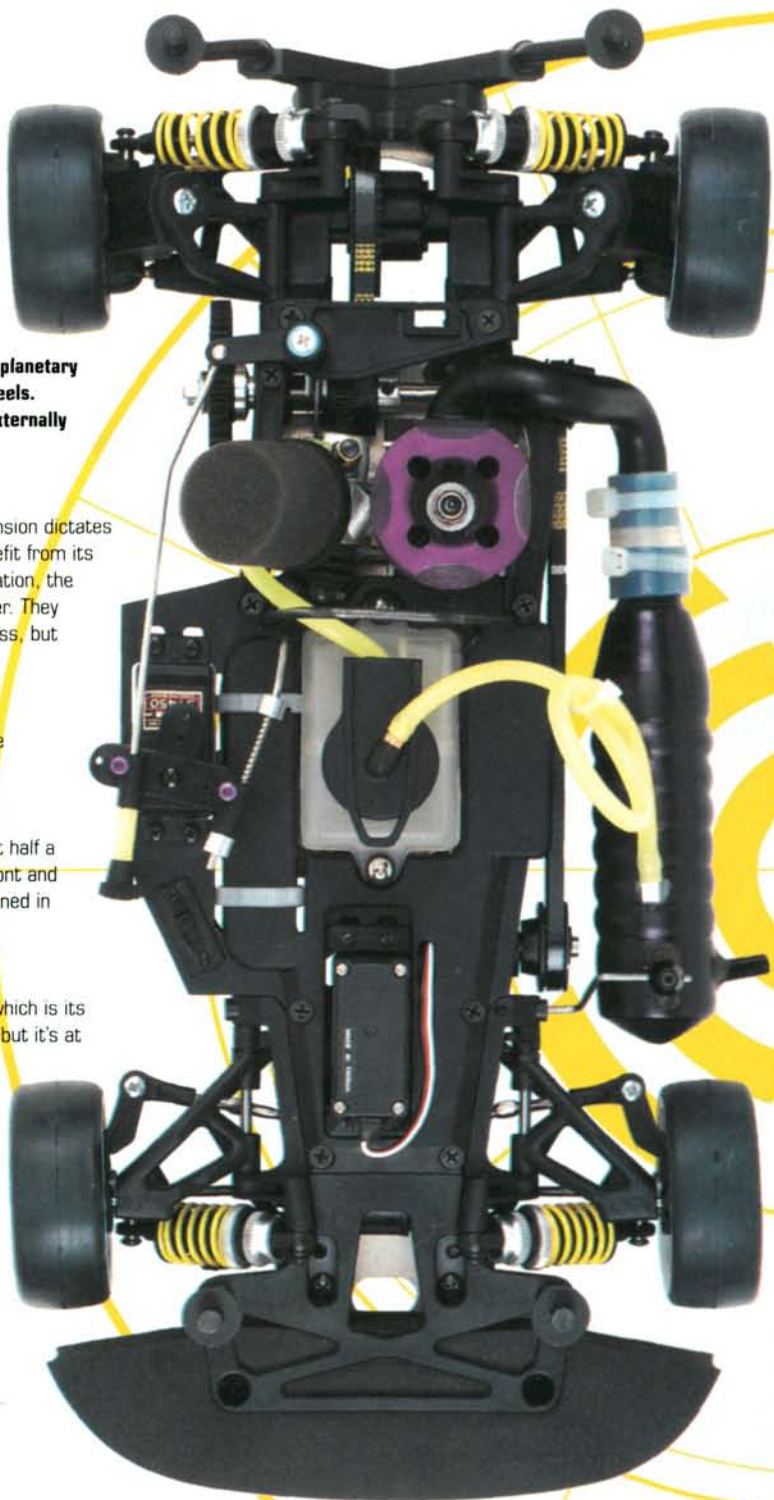
The very tall—5.75:1—final drive ratio of the single-speed setup leaves the Impulse struggling to get off the line, but it's not too long before the engine gets on the pipe and really starts diggin' asphalt. It will easily break 50mph with the standard single speed.

The racetrack is where the Impulse is most in its element. After about half a day of tweaking, we settled on a setup that's essentially stock, but the front and rear suspension were widened to the 200mm maximum. The Impulse turned in the fastest lap times at a blistering 13.9 seconds.

FINAL ANALYSIS

The Impulse demonstrates best-in-class performance on the racetrack, which is its intended environment. It isn't the best drag racer or speed-run machine, but it's at the top of the list in the twisties.

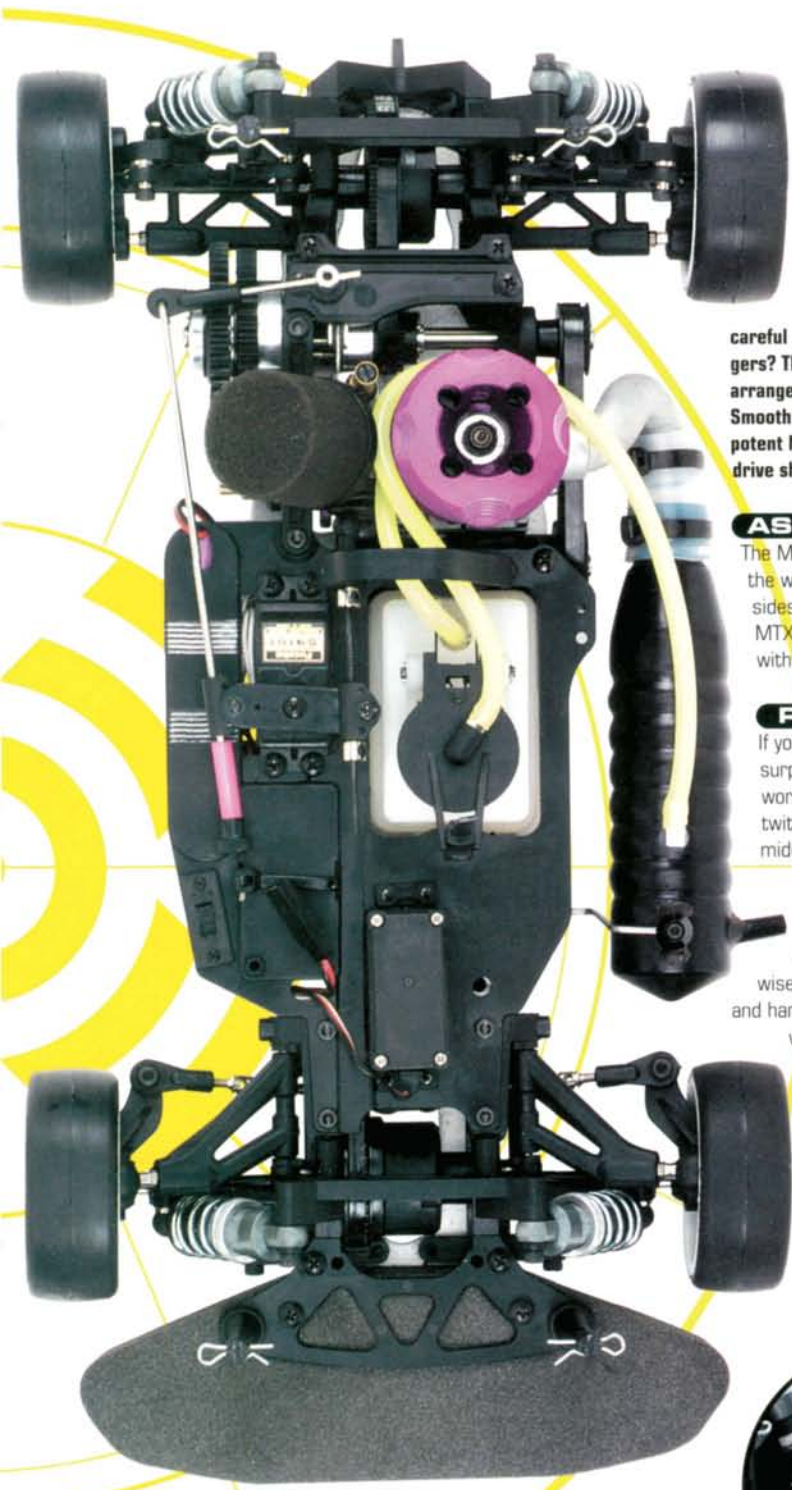
There isn't a lot to complain about in the manufacturing department. The parts are made of a high-quality composite, and almost everything fits without hassle. Some of the upper chassis plates have been known to be slightly too long to be perfectly aligned with the components already attached to the lower deck. The front steering hubs are also very picky about which wheels will fit over them with enough clearance, but it's a minor concern once you've found the right wheel—mostly nit-picking complaints rather than real faults. Overall, the Impulse is an excellent choice for serious racers.



The Impulse's large hubs make it difficult to use a significant number of wheels; their inside diameters simply aren't large enough to fit over the hubs. Note the extra-thick construction.

The molded upper plate didn't precisely align with the screw holes, so it makes the chassis bow very slightly. Despite this minor problem, the Serpent turned in some blazing lap times.





MUGEN MTX-2

Mugen has done some impressive work. This car is based on existing $\frac{1}{8}$ and $\frac{1}{10}$ on-road technology that shows on the track as well as in the pits. Pivot-ball-style suspension is used in the front and the rear. The benefit of this design is that camber, rear toe and track can easily be adjusted. Threaded-aluminum shock bodies damp the suspension. The chassis plate resembles one from a $\frac{1}{8}$ -scale on-road car, but it has fairly sharp edges, so be careful when you handle it; in fact, why not sand them and save everyone's fingers? The upper deck is a composite plastic, and the electronics are neatly arranged and reasonably accessible, though the receiver can be hard to reach. Smooth bevel-gear diffs are powered by a 3-belt drive system that's coupled to a potent Mugen rear-exhaust engine and a 2-speed transmission. Hardened dogbone drive shafts get the power from the diffs to the wheels.

ASSEMBLY

The MTX-2 went together without any real problems. Just make certain that the width of the car is the same from the center out to the wheels on both sides. Also spend extra time on the differentials. After long tests, our MTX-2's diffs started to leak; when you build them, seal the halves together with silicone adhesive and avoid a future mess.

PERFORMANCE

If you opt for the MTX-2 with the MT-12 engine, as we did, you'll be pleasantly surprised; this mill hauls! The engine, drive train and suspension seem to work in harmony, as the car seems to plant itself and take off without a twitch. When the 2-speed kicks in, the car is stable unless you're in the middle of a sweeper (this gets it a little out of shape).

The MTX-2 standard setup is a little less stable than we like. The rear is loose enough to require a really steady hand to get it through the corners. We set up the car with identical front and rear tires, but it soon became clear that a little mixing of tire compounds would be wise. The car would also probably benefit from another degree of rear toe-in and hard inserts in the front tires. Despite its slightly loose setup, the car is very quick, and with some minor tweaking, it can match—and even beat—the best lap times.

FINAL ANALYSIS

The Mugen MTX-2 is a pure competition vehicle. Its pivot-ball suspension means you'll spend a lot of time at the workbench making sure that all the measurements on the suspension arms are equal on both sides.

On the track, this car demands to be driven hard and may require the skills of an experienced chassis man and driver to put down some fast laps. If you're a beginner, this car is not for you.

Both the Mugen and the Serpent use 5-cell "flat" receiver packs. This is Mugen's own 900mAh pack; it's perfect for long Mains.



The threaded shock bodies seen here are standard with the MTX-2. Adjustable pivot-ball suspension makes this car a tuner's dream; the pivot-ball screws can be tightened as the parts wear.

The stainless-steel brake provides smooth and strong stopping power. The rear differential sports a large pulley gear; any debris that gets near is shot out of a large opening at the bottom of the chassis.



HOW WE RATED THEM

FIRST THINGS FIRST: both cars were tested with Pro-Line H-13 tires, Trinity 20% Monster Horsepower fuel, and Futaba 9450 servos.

ACCELERATION. We used the Stalker ATS radar system here; it provides detailed graphs that illustrate the performance of test vehicles along with highly accurate acceleration data. With the statistics in hand, we simply awarded a score to each car, with "10" representing the quickest car.

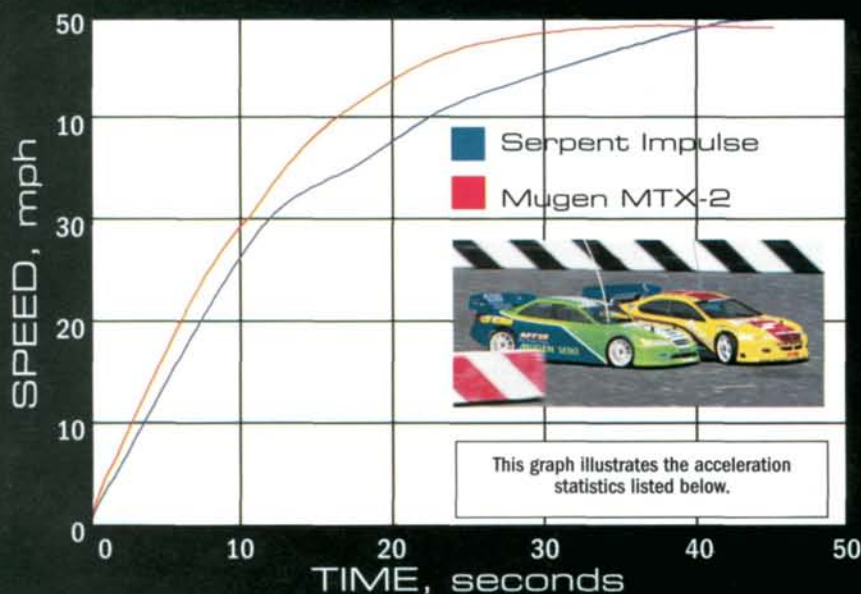
HANDLING. Each car was fitted with a transponder and run hard for at least a couple of hours (no; not nonstop). The car with the fastest lap times was determined to be the best handler with a score of "10."

TOP SPEED. After tweaking the carbs for maximum speed, we simply ran each car flat-punched over a smooth 1/2-mile strip of asphalt until we felt we had maxed out its speed. Each car was awarded points according to maximum speed; again, "10" means fastest.

TUNABILITY. This was a simple one: how much adjustment is built in to allow each car to be adapted to varied conditions. Check the specs for details; as for scores, "10" means most adjustable.

ASSEMBLY/FIT/QUALITY. This is the most subjective rating—one for which we relied on our experience of building and running these cars and our previous experience with others. We combined these factors in one rating; "10" means "best."

	Serpent Impulse	Mugen MTX-2
Approx. selling price	\$265 (\$395 w/engine)	\$355 (\$475 w/engine)
DIMENSIONS		
Wheelbase	10.18 in. (258.6mm)	10.22 in. (259mm)
Width (F/R)	7.87 in. (200mm), adjustable	7.87 in. (200mm) adjustable
WEIGHT		
Total, as tested	60.75 oz. (1,722g)	60.08 oz. (1,605g)
CHASSIS		
Type	double deck	double deck
Material (lower/upper)	3mm aluminum/2mm molded	3.15mm aluminum/3mm molded
Foam bumper	included	included
DRIVE TRAIN		
Type	triple-belt 4WD	triple-belt 4WD
Transmission	single-speed	2-speed cam-type
Drive shafts (F/R)	dogbones	dogbones
Clutch type	2-shoe	3-shoe
Clutch-belt type	ball bearing	ball bearing
Brake type	steel disc	steel disc
Bearing type	metal shielded ball bearing	metal shielded ball bearing
Final drive ratio	5.75:1	7.42:1 (1st gear)/5.71:1 (2nd gear)
Differential	6-gear planetary	6-gear bevel
SUSPENSION		
Front (upper/lower)	A-arm/A-arm	A-arm/A-arm
Rear (upper/lower)	A-arm/H-arm	adjustable upper link/H-arm
Shocks (material)	threaded composite	threaded aluminum
Rear toe angle	adjustable	adjustable
Caster adjustment	caster clips (3)	caster clips (3)
SHOCK MOUNTING POSITIONS		
Front (upper/lower)	1/1	4/1
Rear (upper/lower)	1/1	5/1
CAMBER LINK POSITIONS		
Front (inner/outer)	not applicable	not applicable
Rear (inner/outer)	not applicable	2/4
Swaybars (F/R)	none	none
STEERING		
Type	direct	direct
Linkage	threaded rod	turnbuckle
Servo-saver	servo-mounted	servo-mounted
Ackerman positions	1	1



Scores

	Serpent Impulse	Mugen MTX-2
Acceleration	6.5	10
Handling	10	8.5
Top speed	9 (51.4mph)	8.5 (50.46mph)
Tunability	9	10
Assembly/fit/quality	9	8
TOTAL SCORE	43.5	45

NOTE: the scores listed in this article were culled from the nine-car "Nitro Touring Car Shootout" in the latest issue of *Radio Control Touring Cars*. The scores reflect how the Mugen and Serpent stack up against 7 other cars, not just each other. That's why neither car gets a "10" for top speed; both were outpaced by another tourer. By the same token, the Serpent's "10" in handling indicated that it turned faster laps than the Mugen as well as the other 7 cars we tested. You've got to check out this mega-shootout in *Radio Control Touring Cars*!

Acceleration stats

	0-1 sec. ft.	0-2 sec. ft.	0-3 sec. ft.	0-30 ft. sec.	0-60 ft. sec.	0-90 ft. sec.	0-120 ft. sec.
Serpent Impulse	20.64	69.13	130.19	1.22	1.83	2.36	2.84
Mugen MTX-2	24.68	80.14	148.65	1.12	1.67	2.15	2.59



Serpent Impulse

HITS

Nova Mega engine. This engine, made by NovaRossi, is very powerful. It's similar to other types of NovaRossi engines except for an SG-type (integral pilot shaft) crankshaft. It also features a responsive slide carb.

Pivot-ball suspension. The Impulse is the first car to bring bona fide, four-corner pivot-ball suspension to the nitro touring scene. In the wrong hands, this configuration is a bit of a challenge, but it's clearly an asset to a skilled chassis tuner.

Tuned pipe. It's rare that a competition-level kit comes with a tuned pipe and even more rare when it's an effective one. The Impulse includes a race-ready tuned pipe that works well with the Nova Mega engine.

Steel disc brake. The Impulse brake is taken directly from the bigger Impact on-road car. It's very strong and fade resistant—one of the best in the touring market.

Externally adjustable shocks. Some racers switch to standard shocks on the Impulse, possibly because they're more familiar, but the externally adjustable kit shocks on the Impulse have served us well. The threaded shock bodies and quickly adjustable pistons drastically reduce setup time. For those who must have aluminum shocks, optional aluminum shock bodies are available.

Oversize bearings. The Impulse's bearings are almost twice the size of those in other cars. Their size allows them to better handle the rigors of the long mains in gas racing.

Rugged overall design. The Impulse is generally a rugged car, with components and technology borrowed from the larger Impact on-road car. The steering hubs are not very forgiving of crash abuse, and board-slappers may encounter more breakage than they would expect. But on balance, the Impulse is a pretty tough customer.

MISSES

Soft header. The Impulse kit's included header is required when installing the optional Nova Mega or any other side-exhaust engine. The header is made of a rather soft material that bends very easily. The header is usually forced into the side belt, causing excessive wear of the belt if you don't catch it quickly enough. The soft material makes it easy to bend the header back into place, but we'd prefer stronger material to help prevent the damage in the first place.

Oversize front and rear hubs. The Impulse's front and rear hubs are carried over from the Impact. Their large size makes it difficult to find a touring car wheel that is large enough to prevent contact between the wheels and hubs yet still has enough reinforcement to resist flexing. Bottom line: you have to shop carefully for new wheels to ensure they'll fit.

Limited gear-mesh adjustment. A very limited amount of adjustment is allowed by the slotted engine-mounting holes. This reduces the number of ratios that can be used and limits your ability to properly adjust gear mesh.

No optional shock-mounting locations. The Impulse has but one hole for each shock's upper and lower mount. This lack of shock-mounting options is somewhat offset by the adjustable shocks, but just a couple of extra holes would be nice.



Mugen MTX-2

HITS

MT-12 engine. It's the only rear-exhaust engine on the market (there may be more by the time you read this), and it's a powerhouse. It's made by NovaRossi with the same care and quality as goes into their own name-brand engines, so you're sure to get a solid engine.

2-speed transmission. The MTX includes a 2-speed transmission in the box. A case could be made that it's not necessary for a racing machine, but it's added value in the box. We would prefer to see a clutch-type 2-speed for durability and stability reasons, but it's a bonus just the same.

Aluminum threaded shocks. These shocks are closer to what the mainstream nitro touring buyer wants on his car: the added strength and consistency of an aluminum-body shock and the more familiar fixed, nonadjustable pistons.

Steel brake. The MTX's included large, steel disc brake is much like the Serpent's. It's a piece borrowed from the Avance on-road car, making stopping power a nonissue. The brake is also affixed to an aluminum hub, making it all the more durable.

Pivot-ball suspension. No surprise here. In the right hands, pivot-ball suspension offers much more in the way of tuning compared to a hinge-pin car. A big plus for the MTX are hubs that are part of the suspension. Specifically designed for a touring-car application, they allow almost any wheel to fit with plenty of clearance.

Spring-mounted header. The MTX-2's header, specially designed for the rear-exhaust MT12 engine, is attached to the engine with a retainer spring instead of with screws. This keeps the header better sealed to the engine, as long as the spring doesn't break or fly away as a result of improper installation.

Heavy-duty diff gears. Six bevel gears make up the MTX's diffs, and they are the same as those used in the MBX 1/8 off-road buggy—more than strong enough to handle the rigors of touring-car racing.

All fluids included. It's a nice touch to have all the required fluids in the box when it comes time to build a car. The MTX includes silicone oil for the diffs and the shocks. This saves a trip or two to the hobby shop when you get to the steps that require these rarely included items.

Rugged construction. The MTX's overall design is very rugged compared to other "converted" electric cars in the field. It's cut from the same cloth as the Avance on-road car that has seen combat at much higher levels than a touring car. Parts can be broken as on any other car, but it's one of the two most durable packages in the field.

MISSES

Sharp edges on chassis. This otherwise high-quality kit includes a chassis that is die-cut, rather than machined. The die-cutting process leaves sharp edges that can cut you if you're not careful. It's not a lot of work to knock off the sharp edges with a file prior to assembly, but a cleaner edge out of the box would be nice.

No side belt tensioner. The header is attached to the MT-12 engine just above the short, center drive belt. This belt has enough slack to make installation easy and to prevent skipping but also enough slack to allow the belt to rub against the underside of the header's mounting flange. We got a lot of fuel through our car without damage, but it would be better to have a side belt tensioner to prevent this contact and extend the life of the belt.

Leaky diffs. Despite the ruggedness of the diff gears, the MTX's diff housings may leak. Proper assembly is key to preventing this, but we suggest a very thin coat of silicone sealer during assembly. Although it flies in the face of what Mugen would tell you, our cars with silicone-sealed diffs are still dry.

No turnbuckles for rear upper link. All this trick racing stuff and no turnbuckle link to adjust rear camber. Granted, camber isn't something you have to adjust too often once it's dialed, and there's not too much room between the rod ends for a turnbuckle, but it would be nice to offer an easier adjustment method.

WHO WINS?

With similar designs and construction techniques (and our efforts to set them up equally), it's not surprising that the Impulse and MTX-2 can closely shadow each other on the racetrack, but our testing showed the Mugen to be a tick quicker than the Serpent, thanks primarily to its 2-speed transmission that allowed it to outpace the single-speed Impulse from corner to corner. On the flip side, the Serpent is a slightly better handler, and if equipped with a 2-speed, the Impulse could certainly match the Mugen. In

the end, you're left with two fantastic nitro touring cars that can perform at a higher level than many of us can drive (so if you aren't in the A-main with either car, it's you!), and with some track-appropriate tuning and setup, it's hard to say whether one would have an advantage over the other. But out-of-the-box performance is another story, and we found the Mugen MTX-2 to be just a little better than the Serpent Impulse—1.5 points better, to be precise.

*Addresses are listed alphabetically in "Featured Manufacturers" on page 216. ■



by the staff of RC Car Action

WHY IT WON

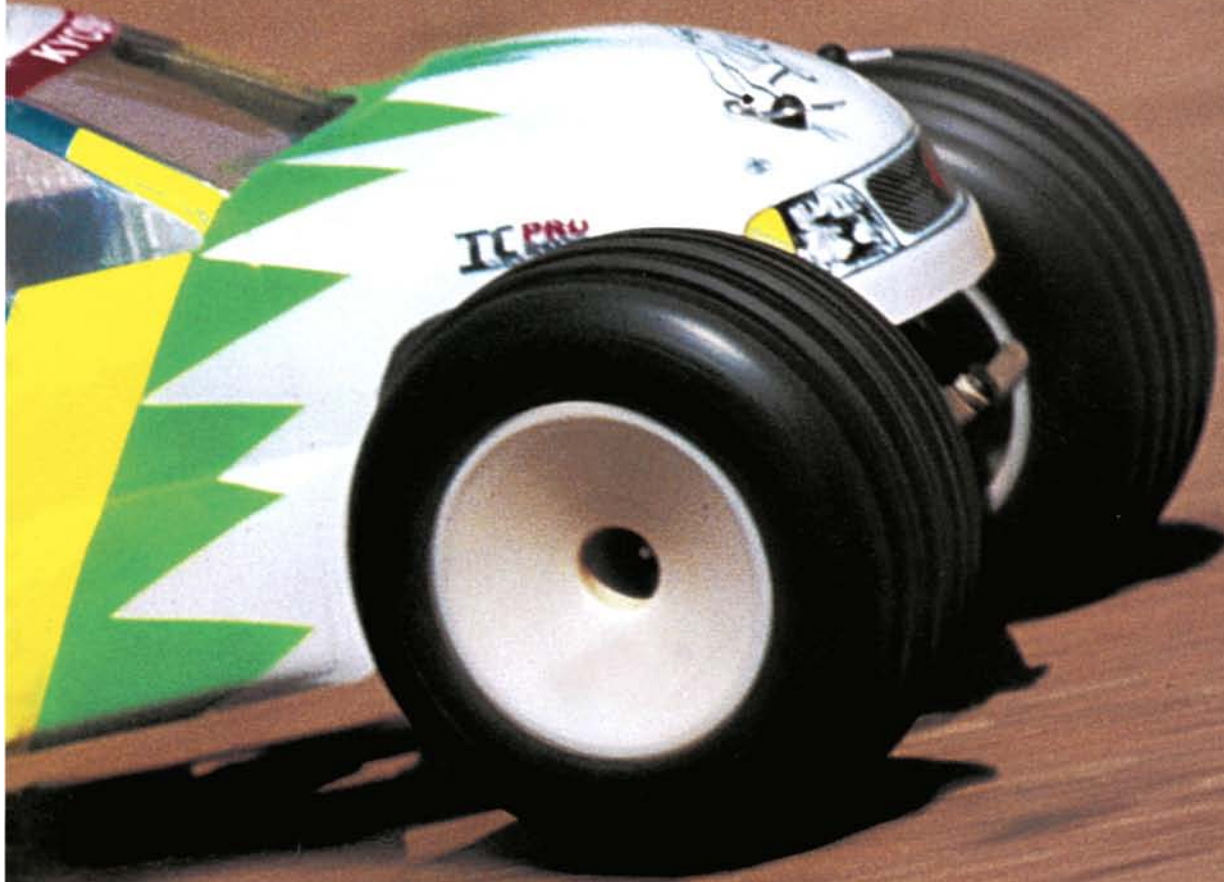
Gas truck racing was admittedly well in the background, as compared to electric trucks, at the time of its introduction. The RC10GT was the first race-worthy nitro truck on the market in the middle '90s, followed by the Losi GTX. During these early days, racers were happy to simply have these competitive nitro-powered platforms with which to race. As time wore on, however, most of the trick suspension and chassis development was for the benefit of the more popular electric trucks. "That was then, and this is now," as the saying goes. The rapid increase in popularity of nitro racing trucks led to increasing pressure from consumers for the development of a nitro-powered truck with the benefits of the latest suspension and chassis technology that the electric trucks already enjoy. Gas truck hopefuls patiently waited for one of the "Big Two" to fire the first shot to

stoke the nitro truck wars, but Kyosho flanked us all with the introduction of the new Ultima ST Type R.

Kyosho has captured four consecutive IFMAR World Championships in the 1/8 off-road class, and now it has lent its considerable expertise in nitro racing to the largely American class of nitro trucks.

The new Ultima ST Type R, as previously suggested, brings nitro truck racing up to date with respect to current suspension technology, and does so in the most refined nitro truck package to date. The advantage the Ultima ST has is that it's designed from the ground up as a nitro racing truck. It includes geometry similar to that found in current electric trucks, but certainly tweaked for the nitro Ultima. Another big "attaboy" for Kyosho is that it made the GP Ultima as adaptable as possible to accessories already on hobby shop shelves, instead of making propri-

KYOSHO ULTIMA

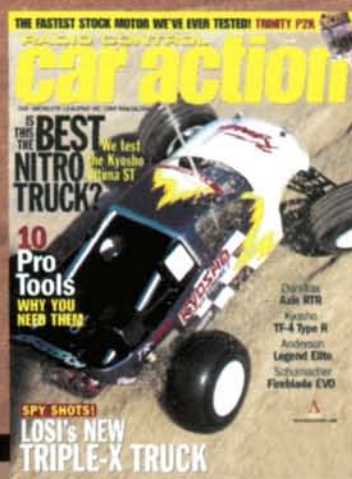


"Is this the best nitro truck?" asked our March 2000 cover. Does Truck of the Year answer the question?

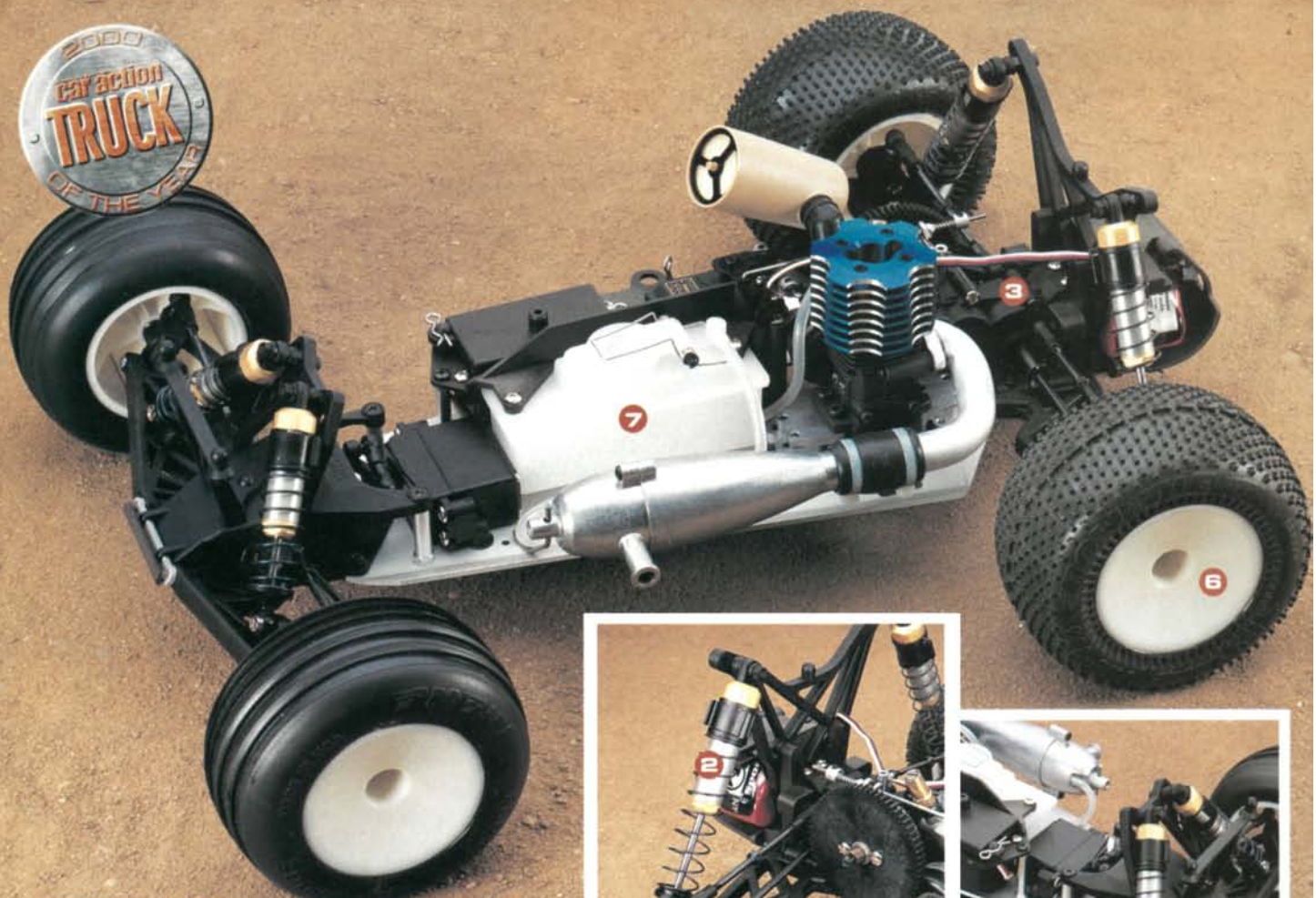
Our Car of the Year pick revealed in last month's issue of RC Car Action, the Serpent Impulse, wasn't chosen because it's the easiest to build, the least expensive, or even because it's the best-selling in its market segment. Truth is, it's none of the aforementioned by a long shot. It is, however, one of the best with respect to the task for which it's designed—pure racing. Racing vehicles, though not entirely suitable for the market at large, tend to garner the most attention.

The discussions surrounding our choice for Truck of the Year followed much of the same "flagship" logic that led us to the Serpent car, and it delivered a similar result; our pick is a racing truck that has had a noticeable impact on its class. Despite long and sometimes vigorous debate, our final conclusion is unified. For the year 2000, the Kyosho Ultima ST Type R gas truck is the Radio Control Car Action Truck of the Year.

etary items that would require hobby shops to carry even more inventory. Other features on the GP Ultima include: a 2mm Duralumin chassis with countersunk screw holes; a set of TC (twin capped) oil shocks that can be assembled in either a pressurized or an emulsion configuration; a TR-Pro 3-gear transmission with a large-diameter main gear using twelve $\frac{3}{32}$ diff balls; a supersmooth steel disc brake with fiber brake pads; a full set of 19 ball bearings; a unique two-piece engine mount with adjusting screws that are isolated from the bottom of the chassis to prevent wear; a dust-proof receiver box; an adjustable, spring-loaded servo saver, Pro-Line wheels and tires, and a cast Silent Streak tuned pipe. These features combine to make the GP Ultima ST Type R one of the most potent performers in its class, and by the way, the Radio Control Car Action 2000 Truck of the Year.



ST TYPE R



FEATURES

1 2MM DURALUMIN CHASSIS

It is channelled on both sides to add strength and prevent unwanted flexing. The underside of the chassis plate has countersunk screw holes for every screw, making it completely flat to avoid snagging on the racing surface.

2 TC PRO OIL SHOCKS

These feature a versatile twin-cap design (hence the "TC" designation) that allows them to be set up with bladders for a pressurized volume-compensating damper, or as an emulsion shock much like those already popular on current nitro trucks.

3 TR PRO TRANSMISSION

This three-gear design came off the drawing board ready for nitro racing trucks. Though compact in size, the transmission has a large main gear with 12 diff balls to absorb all of the power from the engine. It also features a race-proven metal disc brake and fiber shoes, a design often found in its 1/8 off-road and GP20 cars.

4 RECEIVER BOX

The extra dirt and grime generated by a nitro truck can be harmful to radio gear, especially when you try to clean it off. The GP Ultima is currently the only nitro racing truck that comes with a radio box that, while not completely sealed, provides extra protection against dirt, grime, water, etc. It also makes it possible to insulate the receiver with foam to prevent the negative effects of vibration.

5 NEW SUSPENSION

The GP Ultima has the latest suspension geometry, making it closer to the electric trucks that have held the spotlight in years past. Notice the notch in the rear suspension arms for additional clearance around the spur gear.



The suspension arms are symmetrical at both ends of the truck, so a single replacement arm can take care of a broken one on either side of the truck.

6 PRO-LINE WHEELS AND TIRES

The GP Ultima includes Pro-Line wheels and tires as standard equipment. The benefit here is that the wheels are the same as those used on the Team Associated RC10GT. This makes it easier to find replacement wheels and tires in a pinch.

7 CENTRALLY MOUNTED FUEL TANK

A long and skinny fuel tank is mounted almost dead-center to the chassis, minimizing the negative effects of the changing weight of the fuel tank as its content is burned. The longer tank, combined with the forward positioning of the steering servo, adds more weight to the front of the truck for better steering. ■

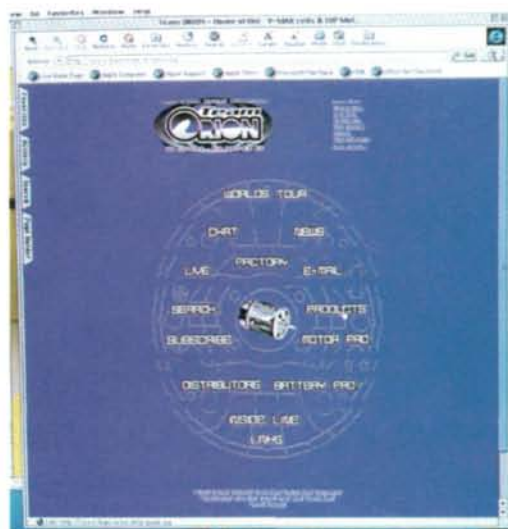


Chad Bradley and Jeremy Kortz join Team Kyosho

Kyosho is beefing up its race team with the addition of Chad Bradley and Jeremy Kortz, who will pilot Kyosho's line of off-road race vehicles (you can see the new 2WD buggy in "Inside Scoop"). Chad jumped ship from Team Associated for the opportunity, while Jeremy has been freelancing among various companies. Both are settled with Kyosho now, and they plan to run in 1/10 gas and electric classes. The new crew, along with original team member Greg Degani, will appear at ROAR national events.

Orion Website Revamped

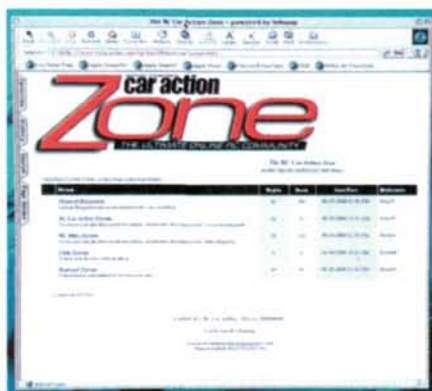
Team Orion has done an excellent job of designing a user-friendly site that not only provides all the latest, up-to-date info about its products but also features an informative chat room. Racers such as Jimmy Jacobson, Richard Saxton and world champion Jukka Steenari visit the site regularly and answer as many questions as they can. To keep informed of the latest speed secrets and maintenance techniques and answers to FAQs on batteries and motors, check out the site at www.team-orion.com.



Let's talk

If you want to hear the latest RC gossip and learn about setups, ask questions about products, talk to racers in your area, and/or have comments on our magazine, I have the perfect place for you to speak your mind. *RC Car Action's Zone* is up and running. You'll find topics of general interest, *RC Car Action* magazine and our *Nitro* issue and club and regional bulletin boards on which you can discuss related topics. Log on and check out the Zone; if you want to join the conversation, just register; it's free!

The address is www.rccaraction.com, sign on after you've finished reading this issue.



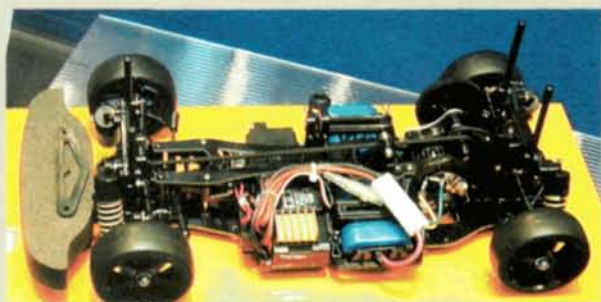
MIKE BLACKSTOCK JOINS SCHUMACHER

Mike Blackstock recently joined the Schumacher touring-car campaign. With plenty of experience and a ton of big wins behind him, Mike and his Axis will undoubtedly be in the winners' circle soon. Mike's first race for Schumacher was the Reedy Touring Car Race of Champions. He will represent Schumacher at all major events, including the upcoming Worlds.

FINALLY HERE:

Team Losi Dirt-Spec tires

Those funky blue Dirt-Spec off-road tires are at last available from Team Losi. Losi and a team of chemists worked long and hard to develop a blue rubber compound that lasts long and is tamper-proof. The original rear tires were supposed to be step-pins, but Losi found that stud pins are better for all types of track conditions, and the popular ribbed-type tires were selected for the front. The tires include foam inserts and will be offered in buggy and truck sizes.



David Jun to drive the new TA04

David Jun, formerly of Tamiya, now works for E.hobbies but will remain behind the wheel of a Tamiya car; he'll be running the new TA04 in regional and national competition. Maybe we'll see David and the Tamiya TA04 take a national championship; he did it once before with the TA03.



SPEED SHOP



OFNA CLEAR LEXAN RIMS

There are a million lame "clear choice" puns for this product, none of which you will read here! The new OFNA rims are molded out of Lexan (yes, the same stuff bodies are made of) for extra rigidity, and as you can see, they're crystal clear. The rims are sold with flanges to accept all 24mm TC rubber, or flangeless for foam-tire use. To add stiffness to the no-flange hoops, five spokes are used instead of the four seen here. The clear rims are sold in economy 8-packs.

HG GT bulkhead

Still running your GT with the plastic rear bulkhead? HG's* new aluminum bulkhead is an excellent replacement for the stock piece. The alloy bulkhead is strong, lightweight and machined with stylish curves to dress up the aesthetics of your truck. But be warned: unlike the plastic bulkhead, which has four holes for each camber link, the HG unit only offers two mounting positions per side, and this reduces your setup options. The bulkhead fits both the GT and the Nitro DS. **GT rear bulkhead—part no. 2100, \$36.95.**



Penguin RC RS4 2 upgrades

Penguin RC* has released a new chassis, CG-lowering kit, battery-strap system and an upper deck with transponder mount for HPI's popular RS4 Pro 2 and Sport 2. The chassis is cut to allow the batteries to sit low without reducing ground clearance. The upper deck has also been designed to eliminate handling irregularities. The battery straps allow quick and easy battery changes while holding the batteries tightly in place. Other goodies such as aluminum standoffs help rigidity, and the CG-lowering kit improves the car's stability. While you're at it, the carbon-fiber transponder mount is a cool upgrade, too.

Pro strap system—part no. P3700, \$15.99.
Upper-deck system—P3701, \$28.99.
Transponder mount—P3702, \$3.99.
Chassis-standoff posts—P3703, \$6.99.
CG-lowering kit—P3704, \$4.99.
Performance Lower chassis—P3705, \$57.99.

Tobee Craft TL01 parts



The Tamiya TL01 series is an inexpensive way to get into radio control sedan racing. But after a while, everyone gets the urge to make their cars go faster and handle better. Tobee Craft's* new TL01 optional parts are an excellent way to make your TL01 perform better than the competition. To lighten the drive train, Tobee offers a lightweight main shaft, axles, drive shafts and joint cups. Additional gears are offered to change Tamiya's optional speed-tuned gear set's ratio (53342). To reduce suspension and steering slop, Tobee has machined-aluminum upper links with 2 degrees of camber and a tie-rod kit to adjust toe.

Upper arm (F/R)—part nos. 40850/40870, \$12.49.
Axle shaft—40170, \$10.99.
Joint cup—40160, \$9.99.
Drive shafts—40150, \$8.99.
Main shaft—40180, \$5.99.
Tie-rod turnbuckle—40780, \$6.49.
Gear set—40710, \$24.99.

DuraTrax Rapid Heat

DuraTrax's* Rapid Heat glow-starter features a twist-lock design that grabs tightly yet releases easily, and its long shaft keeps your fingers away from hot heat-sink heads, even on .21 engines. A 1500mAh Sanyo cell is installed in the alloy handle, and a 10-hour charger with a charging-status LED is included.

Rapid Heat glow-starter—part no. DTXP3000, \$17.99.



sponsored by

KYOSHO
THE FINEST RADIO CONTROL MODELS

5 QUESTIONS

Age: 22

Last big win: ROAR

On-road Nats

Home track: "I race all over"

When I'm not racing:

I sleep or work on my Jeep

Sponsors: Yokomo, Airtronics, LRP Phantom Motors, MIP, SMC Batteries, Jaco

Chris Tosolini

RC Car Action: Racers always pull pranks on each other to pass the time between races. What pranks or stunts have you pulled recently?

Chris Tosolini: Well, I probably shouldn't mention this, but after the Reedy Touring Car race, I was at the airport and saw a bunch of my fellow factory drivers, and I decided to break out in a full moon right in the middle of the airport. Everybody got a kick out of it.

RCCA: We thought your Jeep was going to roll in the parking lot. Do you always drive that thing the way you drive your sedan?

CT: You better believe it! Even though the CG is about three feet off the ground, I drive it pretty aggressively. Sometimes I get some strange looks from lowered street racers as I fly by them.

RCCA: You seem to be able to get through traffic easily; do you have any advice on coming up through the field?

CT: The best advice I can give is to be patient. If you truly are faster than the car in front of you, don't be too aggressive; it gets you nowhere. Hang back a little, and follow your line while you watch to learn where to pass. People who are pressured from behind tend to make small mistakes that you can capitalize on. If it is lapped traffic, remember: they are racing, too; give them some time to let you go. Being too aggressive will only increase your chances of getting into a wreck.

RCCA: Is being a big, sponsored racer all it's cracked up to be?

CT: Being sponsored is a heavy responsibility that drives me to do well not only on the track but also as an ambassador of the hobby. I have been in racing for about ten years, and I would still race even if I wasn't sponsored, but it's a job that I enjoy doing. Some people might not be able to handle the pressure of performing in every race, but I thrive on that pressure.

RCCA: As an East Coast driver, do you feel there is any advantage to living on the West Coast?

CT: Unfortunately, I think there is a disadvantage to being here on the East Coast. Not that the quality of drivers is any lower, but having most of the major manufacturers based out there is an advantage. You get first dibs on new products and setups that have to travel a few thousand miles before they get to the East, not to mention that the weather in California allows year-round racing, so there is more time to concentrate on getting the car as fast as it can be.

UNDER THE HOOD

CHRIS'S YOKOMO
MR-4TC PRO



Lower left: the Lunsford titanium tie rod is used to add tension to the rear belt.

Lower right: Chris uses an HPI purple swaybar up front; the bulkhead and all of the suspension components are optional graphite pieces.



Left: from this overhead angle, you can see where Chris added lead weights to balance the car.



FACTORY OPTIONS

ALL PARTS ARE FROM YOKOMO.

■ one-piece upper deck—part no. ZS-003UD ■ front lower suspension-arm set, graphite—ZS-008FG ■ rear lower suspension-arm set, graphite—ZS-008RG ■ Pro tuning springs, Green (2 each)—YS-1455 ■ front and rear shock tower, graphite—ZS-017TG ■ front bulkhead, graphite—ZS-300FTG ■ rear bulkhead set, graphite—ZS-300RTG ■ rear swaybar kit (3 bars)—ZS-412R

MEDIUM-BITE ASPHALT SETUP

	FRONT	REAR
Caster/squat	7°	Stock
Camber	-1/2°	-1/2°
Toe-in/out	1° out	2.5° in
Ride height (mm)	4	4
Shocks		
—fluid	40WT	40WT
—piston	No. 3	No. 3
—spring	Green	Stock
—length (mm)	60	60.25
—mounting location (upper/lower)	Outer/outer	1 in/outer
Camber-rod location (hub/bulkhead):	Stock/middle inner	Outer/top all the way in
Swaybar	HPI purple	Stock black

MODIFICATIONS

Chris replaced the stock A-arms, shock towers and bulkhead with the optional graphite parts for extra rigidity then channeled out the center brace to allow some chassis flexing to make the handling feel smoother. He then added an HPI purple front swaybar to take away some chassis roll and over-steer. According to Chris, the rear swaybar increases rear traction and also helps the car go through corners faster. A rear belt tensioner was used to reduce the chance of belt skip. Last, for extra rear traction, he used 2-degree rear blocks. Chris also suggested greasing the rear outdrives to help reduce chatter through the turns.

EQUIPMENT

BODY: Andy's Dodge Stratus (carpet)
SERVOs: Airtronics 94357
RADIO: Airtronics M8
INSERTS: Jaco Blue
RECEIVER: LRP Phaser
TRACTION ADDITIVE: None
TIRES (F/R): Pro-Line H13 Slicks
BATTERY: SMC 3000s
GEARING: 78/19
MOTOR: Phantom 7-turn double
SPEEDO: LRP V7.1

HOT MOD HOW TO

INSTALL A FLYWHEEL ON A TRINITY/PICCO .12

In the building stages of our huge "Super Nitro Touring Shootout" (see the Fall '99 issue of RC Touring Cars), we discovered that crankshafts in Picco engines step up to 6mm in diameter where the flywheel is mounted (other engines' crankshafts remain 5mm throughout). The Picco design requires some hand-machining to fit a 5mm flywheel to be properly installed in some cars, such as the OFNA Nitro OB4 we're working on here. All you'll need to make the required mod is a drill, a 6mm drill bit, a ruler and a roll of masking tape.



exactly how much the flywheel needs to be bored out to clear the step in the crankshaft

■ STEP 3. Wrap a piece of tape around the drill bit to act as a depth gauge; the length of drill bit below the tape should be equal to the depth of the counter-bore you will drill in the flywheel. Measure carefully! If you drill straight through the flywheel, it won't center properly on the shaft. Hold the flywheel in a vise when you drill, and be sure to hold the drill perpendicular to the flywheel. Best bet? Use a drill press. While you're at it, strap on some safety goggles.

■ STEP 1. The OB4 requires that a prop washer (included with the engine) be installed before the flywheel goes on. Be sure to use the supplied Picco brass taper cone.

■ STEP 2. With the washer installed, measure the length of shaft left between the washer and the threads. This measurement will tell you



Compare the stock flywheel opening (left) and the new opening (right).

■ STEP 4. With the flywheel mounted on the engine as per the instructions, the clutch nut should tighten without any problems. Cars that do not use a prop washer may need shims behind the brass cone to space the flywheel up to the threads, or the clutch nut may need to be drilled as described above.

LAST LAP

Should ROAR offer a Sportsman National Championship for non-sponsored drivers?

Of course ROAR should offer a Sportsman class. There has to be a place where the average racer will fit in. I'm not sponsored, and it's more fun when you don't have the pressure of having to win to satisfy a company and help its sales. I race for the fun of it—not for the glory.

—Mike Cornacchione

I don't think there should be a separate Sportsman division. RC car racing is one of the only sports that allows the average racer to race against the pro's. Some people don't realize that the only way to improve is to race against better drivers—not to mention that the Mains pretty much separate drivers. The A-main will almost always be the pro's, and lower Mains will consist of the local elite drivers. I think that's enough separation. Everyone should be happy to race against the top drivers and to have the opportunity to see how they measure up against the top guys' times.

—Steven Gibbs

I would like to see a Sportsman national championship. When non-sponsored drivers compete against sponsored drivers, we usually wind up qualifying for the lower Mains. A separate championship would allow a talented driver to shine instead of going unrecognized because he was in the C- or D-main after the sponsored drivers filled the top slots.

—Paul Brown

I've always been kind of confused about what, exactly, a "Sportsman" is, but I'm all for awarding some kind of "national champion" status to the number-one, non-sponsored regular guy. Even if I didn't win it—and I can guarantee I wouldn't—it would be cool to see where I stand against drivers like myself, as well as the full-factory guys.

—Roger Westgate

NEXT MONTH'S QUESTION

Nitro racers can choose "off-road" .21 engines or "on-road" .21 engines, but .12 engines are not application-specific. Do you think .12 engines should be offered in "on-road" and "off-road" versions?

Email your responses to
gregv@airage.com.

Type "Last Lap" in the subject box, or log on to
"Last Lap" at www.rccaraction.com.

HPI CHALLENGE 2000

FLORIDA REGIONAL

by Louie Patterelli

The Sunshine State has yet another thing for the rest of us to be jealous about: the HPI Challenge. The balmy April climate of central Florida turned a few degrees warmer with some of the hottest one-manufacturer racing I've witnessed in a long time. Ninety racers showed up (some from as far away as Washington state) to try to feed one another taillights at central Florida's premier race place: Superior Hobbies in Castleberry (just north of Orlando)—by far the best place if you're looking for competition. On the first Saturday and Sunday of each month, Superior hosts 200-plus gas and electric RC racers. They know how to run a race. The competition was very fierce, but not a single person walked away without a smile.

Competitors were given plaques and their choice of one of HPI's beautifully complete and detailed bodies (nitro box-stock competitors earned two bodies)—not bad for a \$15 entry fee! If HPI hosts a race near you (or even if it isn't near you), it's worth it to take the time to go have some fun with like-minded individuals. For more info on the HPI Challenge and photos of this and other races, check out the HPI website at www.hpiracing.com.



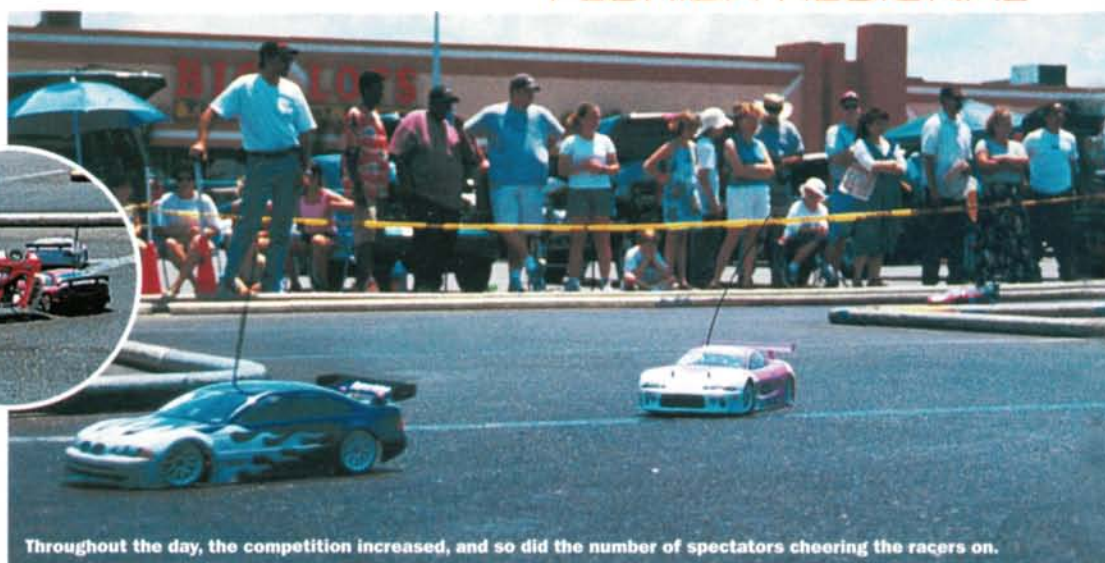
The concours competition showed off many racers' detailing skills. Scott Kovalik took home the trophy with his highly detailed Stratus that includes a full interior with working camera light.



Team spirit is high at these friendly but competitive events. Racers always help out other racers in trouble.



The line for the HPI body giveaway was long but well worth the wait in the hot Florida sun.



Throughout the day, the competition increased, and so did the number of spectators cheering the racers on.

A-MAIN

HPI ELECTRIC RS4

POS.	CAR	LAPS	TIME	NAME
1	1	25	5:11.44	G. Scott Boggs
2	2	24	5:05.72	Chris Jeffries
3	4	24	5:16.94	Scott Kovalik
4	5	23	5:01.37	Paul Demeza
5	3	23	5:08.40	Danny Baez
6	6	23	5:09.60	Roberto Liantin
7	8	23	5:13.56	Patrick Linkenheimer
8	9	21	5:00.63	Stephan Wyckoff
9	10	21	5:08.74	Joe Ponce
10	7	9	1:52.84	Izzy Santiago

HPI BOX-STOCK NITRO

1	4	41	10:03.60	Henry Hernandez
2	1	41	10:04.02	John Wong
3	7	41	10:05.30	Ken Higby
4	3	40	10:01.15	Ian Hew
5	10	36	10:10.16	Matt Keenan
6	5	26	7:48.87	Robert Trinchitella
7	6	21	8:00.77	John Anderson
8	2	13	3:48.51	David Franklin
9	8	12	3:20.07	Tim Grady
10	9	1	0:05.90	Jayson Nazario

HPI NITRO RS4 OPEN

1	1	43	10:04.23	John Wong
2	2	43	10:08.68	Joe Chin
3	4	41	10:04.30	Jabo Morgan
4	6	39	10:02.60	Tom Keele
5	5	39	10:10.24	Chris Sweeney
6	9	34	9:30.33	Jason Nazario
7	10	30	10:14.02	Curtis C. Hamlin
8	8	29	10:00.54	Shawn Segura
9	7	3	0:27.17	Roberto Liantin
10	3	2	0:23.08	G. Scott Boggs

SUPER NITRO RS4 OPEN

1	1	38	10:07.20	Bob Kolitz
2	2	37	10:11.81	Jeremy Kanski
3	3	35	10:05.09	Dave Bryant
4	4	21	5:08.30	Tim Grady

*Addresses are listed alphabetically in "Featured Manufacturers" on page 216. ■

Due to high winds, goggles and glasses were a must—unless you were into having your eyeballs sandblasted.

SILVER STATE NITRO CHA

SPONSORED BY KYOSHO, THUNDER TIGER, ASSOCIATED,



PHOTOGRAPH BY CHRIS DOWNS AND KEVIN HERNANDEZ

by Chris Boise

ALLENGE

O.S. ENGINES AND CHAMPION TIRES



Who wouldn't want to attend a big off-road gas race set in the glow of Las Vegas? The desert setting is synonymous with dirt, and the elements of luck and chance that make racing exciting are the very foundation of Vegas culture. But in this game of chance, weather seemed to be the biggest wild card; instead of the usual arid heat and still air, temperatures were in the 60s and heavy winds buffeted the track. Add some of the world's finest gas racers—all amped for the competition and after-race Vegas action—and you have a recipe for a true RC happening. From the moment I arrived on the scene, I knew the 2000 Silver State Nitro Challenge would be an interesting, exciting weekend of racing.



SILVER STATE NITRO CHALLENGE



QUALIFYING

• **1/8-scale Buggy.** It wasn't a real surprise that Las Vegas's own Richard Saxton captured the TQ honors; Saxton and his Thunder Tiger EB-4 have been dominating 1/8-scale buggy recently. What *did* surprise everyone was that his TQ time was an incredible 11 seconds faster than runner-up Kyosho driver Adam Drake's. At this upper echelon of racing, it's uncommon for a driver to qualify so much faster than the competition. Kyosho's Greg Degani rounded out the top three qualifiers, and the stage was set for a very fast A-main.

• **1/8-scale Truck.** Although only seven drivers participated, the racing action was exciting. When the qualifiers were tallied, Jay Shaffer's

Kyosho truck was in the TQ position followed by Jim Williams and Caillen Kanekoa. Not only is this a prestigious race to win, but it's profitable as well. Two drivers chose to run the Megatech engine in their trucks, and that made them eligible to win some serious cash in the Megatech Contingency Program. It's appropriate that in the gambling capital of the world, a race would have so much at stake for these two drivers!

• **1/10-scale Truck.** When Saturday's qualifying began, 105 drivers set their sights on the A-main; when qualifying ended, only eight drivers were certain of their positions in the A-main. Two other drivers (required to fill the grid) were bump-ups from the B-main. Sitting on the pole for Sunday's



"Hey, some guy was just telling me about a wonder product called 'glue,' or something. I think he was crazy."

LOSI TRIPLE-XNT PROTOTYPE INVADES VEGAS!

Since returning from the Silver State race, *Radio Control Car Action* has scored a much more polished preproduction Triple-XNT. But on race day, Team Losi was running hand-built machines like this one. Considering that the trucks were not built until after the drivers arrived in Las Vegas for the race, they ran fantastically well—three of the new trucks made it into the A-main! Check out the "First Look" on the new truck elsewhere in this issue for all the technical details.



The front end is all Triple-X. Compare the mid-section of the proto with the just-about-production-ready truck in the "First Look"; it's a lot cleaner!



Above: the chassis plate is 7075 aluminum—tougher stuff than the usual 6061.

Left: note the small spur gear; the new truck's tranny is geared for a 4.11:1 reduction, so a dinner-plate spur gear is not required.



The solid rear arms are hand-machined proto pieces. They got the job done well enough!



1/8-scale buggy A-main winner Billy Easton.



13-year-old Jason Tebo top-qualified in the 1/10-truck class.



Master mechanic Regan LeBlanc shares a laugh before the 1/8-scale A-main.

1 hour A-main was 13-year-old factory Associated driver Jason Tebo. It's incredible that Jason has raced only a year and qualified ahead of runner-up Mark Pavidis and third-place qualifier Jason Smolnik. The A-main was sure to be exciting!

THE MAINS

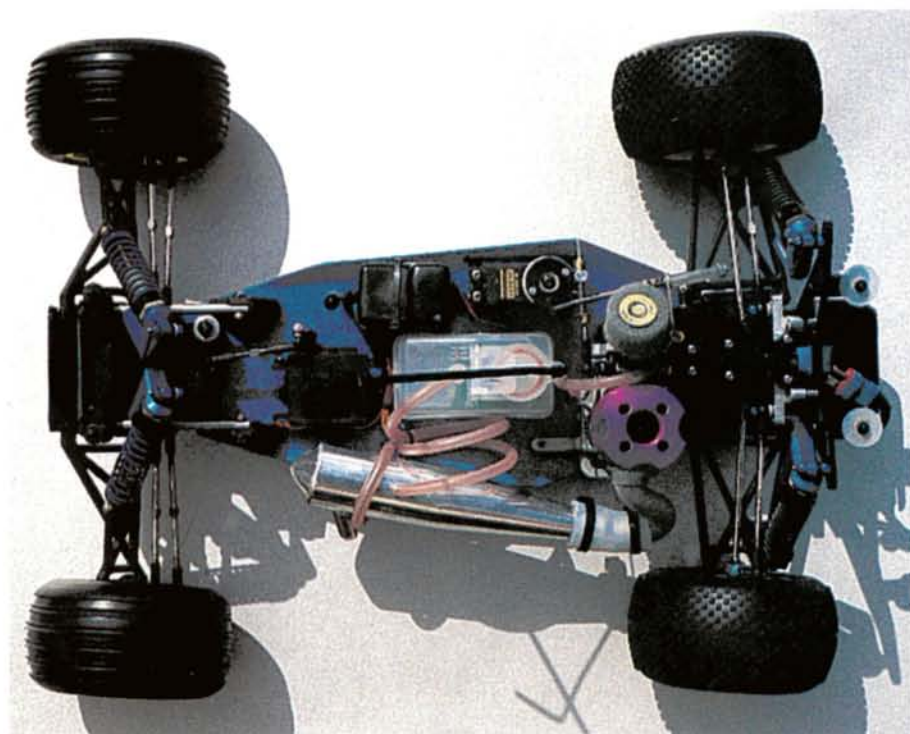
• **1/8-scale Buggy.** With Saxton's dominant qualifying time, everyone bet the real race

in the 1-hour Main would be for second place. It wasn't so! A lot of unexpected action happens in the off-road nitro racing world. At the start tone, Saxton indeed grabbed the holeshot and looked as though he would pull away from the field—until the 15-minute point. His troubles began with an engine flameout. And waiting right there for any kind of bobble were Billy Easton and Adam Drake, who put on

quite a show of dicing it out up front for the next 45 minutes. Easton, however, prevailed as the champion when the checkered flag flew. Drake finished a solid second, and defending champion Saxton finished a respectable third.

• **1/8-scale Truck.** Jim Williams took first place in this 20-minute Main, followed by Chris Smith running the Megatech engine. For his efforts and excellent finish, Chris earned \$7,500 from Megatech! From the talk around the pits, Chris was apparently the only driver to leave Las Vegas with more money than he arrived with. Congratulations, Chris! Not to be left out was Felix Racoma with a solid third-place finish.

• **1/10-scale Truck.** Team Associated/Pro-Line driver and all-around nice guy Scott Hughes put together a nearly flawless run to top the field in this 1-hour Main. Hughes worked his way up from the back of the pack and passed the entire field one by one—an awesome performance that earned a well-deserved first-place trophy.



This is Scott Hughes' winning Factory Team GT. Since the Factory Team truck includes all Associated's GT hop-up parts, I guess that makes Scott's truck "stock."

THE TRACK

A whopping 212 entries and incredible winds created a challenge for the staff at Western R/C Raceway, the host track. It was no doubt the roughest and dustiest racing venue that anyone had ever seen. Holes that literally swallowed 1/10-scale trucks were numerous, and the dust not only challenged the equipment but also the drivers. By the end of the first round of qualifying, almost everyone was wearing motocross goggles to protect their eyes from the elements.

The original schedule included four qualifiers. The average of the racers' best two qualifiers determined their place in the Mains. Controversy began to brew when some computer glitches early on Friday necessitated the rerunning of several qualifiers. On Saturday morning, it became clear that the lack of sunlight would permit only three qualifiers. Track officials had to make a tough call that made quite a few racers unhappy. In retrospect, the decision didn't matter because the track was much faster on Friday. On Saturday, it was so rough and dusty that nearly every racer posted slower times than on the day before.

SILVER STATE NITRO CHALLENGE



1/10 TRUCK

FIN.	QUAL.	DRIVER	CHASSIS	ENGINE	FUEL	RADIO	TIRES
1	9	Scott Hughes	Associated	NovaRossi	O'Donnell	KO	Pro-Line
2	10	Billy Easton	Associated	NovaRossi	O'Donnell	Airtronics	Pro-Line
3	2	Mark Pavidis	Associated	—	—	—	—
4	6	Austin Dvorak	Associated	TOP	O'Donnell	Airtronics	Pro-Line
5	7	Matt Francis	Losi	Trinity/Picco	Trinity	Airtronics	Losi

1/8 BUGGY

1	4	Billy Easton	Thunder Tiger	O'Donnell	O'Donnell	Airtronics	Champion
2	2	Adam Drake	Kyosho	Trinity/Picco	Trinity	Airtronics	Kyosho
3	1	Richard Saxton	Thunder Tiger	NovaRossi	O'Donnell	JR	Champion
4	10	Mike Dunn	Jammin' Mugen	O.S.	O'Donnell	KO	Pro-Line
5	3	Greg Degani	Kyosho	O.S.	O'Donnell	Futaba	Pro-Line

1/18 TRUCK

1	6	Jim Williams	—	—	—	—	—
2	4	Chris Smith	Kyosho	Megatech	Pit Stop	Airtronics	Kyosho
3	5	Felix Racoma	Kyosho	—	O'Donnell	JR	Kyosho
4	7	Dean Sexton	Kyosho	Rex	O'Donnell	Airtronics	Kyosho
5	—	Tom Macomber	—	—	—	—	—

THE POWER...



VECTOR V-SERIES

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- Aluminium wheel-adaptor set front/rear, fixed (extra)
- Conical wheel-shim set front/rear
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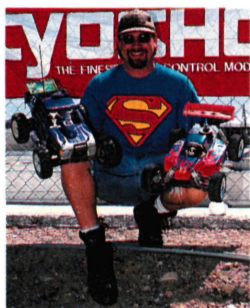
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- 1999 ROAR National Champion

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Left: why is this man smiling? He just earned \$7,500 from Megatech for his well-deserved second-place finish. Superman shirt or not, this young lady (right) could have easily pummeled him and made off with the dough.

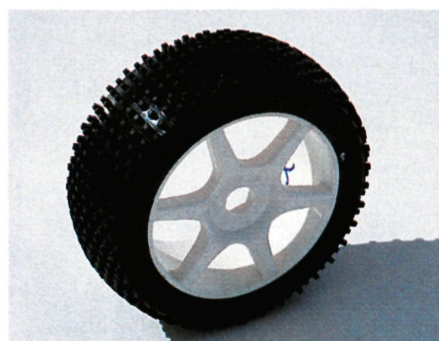


THE FINAL WORD

The 2000 Silver State Nitro Challenge was an exciting race to attend. Two new trucks debuted, and a lot of new products were put to the test on this extremely rough track. Competitors, friends and families had a good time, and I know that everyone had fun just hanging out in Las Vegas. Who wouldn't?

The race didn't go without a hitch: there were some organizational problems, computer glitches and bad track conditions, but nature created the greatest problem: the wind didn't let up until Sunday afternoon. After this race, several racers mentioned that goggles would now be part of their normal pit gear.

For next year's Silver State Nitro Challenge, we can look forward to a new location. Richard Saxton and his mechanic Regan LeBlanc will organize the event



Pro-Line had some drivers on the new Crime Fighter tires and promises more 1/8-scale treads to come.

Second was Billy Easton, and third went to Mark Pavidis. It's interesting that Hughes and Easton bumped up from finishing first and second, respectively, in the B-main.

at the Las Vegas Motor Speedway. I know I'll be there! ■

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NOVA MEGA
REAR VIEW OF IMPACT M2

NovaMega: SX-15 MS EV3, #2603MS, #2605MS

SX-15 EV3 #2603, #2605

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• 1998-1999 IFMAR World Champions Group-C and Touringcar
• 1999 ROAR National Champion

www.serpent.com

Set up Nitro Bodies

by Derek Buono

Trimming tips for performance, convenience, and reliability

A nitro car's body can affect its performance in many ways: not only does it affect handling, but if properly trimmed, it allows the engine to run cooler and facilitates starting and refueling. If improperly trimmed, the body may increase engine heating and impede exhaust flow or even cause a flame-out and damage your car if you're not careful. Here's how to set up your nitro body the right way.

Trim for proper airflow

Nitro engines are air-cooled and require plenty of fresh air flowing over the head to keep their temperatures down. The body encloses the engine, so you should cut some openings in it to allow air to pass through. Naturally, a larger opening increases air-cooling, but if you race in the nitro touring class and the track requires that you follow ROAR rules, there's a limit to how big an opening can be. The rules permit a 2-inch-diameter round hole in the windshield. If you choose to cut a square or rectangular opening, it must not exceed 2 inches measured diagonally (as a TV screen is measured); if you cut a 2x2-inch square hole, it won't be ROAR-legal. Cut a round hole to maximize cooling; a standard sedan rim is a perfect 2-inch-diameter template. For nitro trucks, you're allowed to remove half of the windshield. If your track doesn't follow ROAR rules too strictly, cut a larger opening if you like, but be careful; you don't want to weaken the body.



This Kyosho's side window has been removed to allow fuel access, and rear holes allow air to flow out of the body. ROAR allows the front side windows to be completely removed for under-body access.



If you are not concerned about being "legal," you can leave the Lexan you cut out of the windshield in place as shown. You can fold it into the body to fit between the receiver and tank to act as a splash guard.



This 2-inch cooling hole doubles as a refueling port. Notice that the hole is positioned to provide maximum airflow over the engine head and allow access to the fuel tank.

Fueling and starting access

FUELING. Being able to access the fuel tank when the body is attached is a must, whether because you need to make fast pit stops during a race or you just want to avoid the hassle of having to remove the body whenever your car needs a refill. Generally, the opening is best cut directly above the tank, but you may find it easier to use a windshield cooling hole or to remove a side window for fuel-tank access. If you remove a window, be sure the corners of the opening are rounded; sharp corners often crack.

Now you can get to the tank, but you still need a way to open it. Most racers use a zip-tie with a fuel-tubing pull-strap to pull the tank lid open without having to reach under the body. Most fuel-tank lids have a slot just for this purpose; if yours doesn't, drill a hole in the finger catch for a zip-tie. Depending on the location and orientation of your fuel tank, you may have to make another hole in the body for the pull-strap, or you may be able to simply route it out through the cooling hole in the windshield.



Here, a fuel-tubing pad protects the starter cord from damage caused by rubbing against the body. The window cutout looks cool, but look closely; it should have rounded corners to help prevent the body from cracking.



With its fuel-tubing pull-strap, this Mugen is ready for blazing-fast pit stops. The hole is also in the right place to allow access to the glow plug. Try to minimize the number of holes you carve into a body; having too many holes looks hack.

STARTING. Removing the body takes far too much time during a race, and even when you run just for fun, it's a hassle. Access holes for the pull-starter and glow plug make restarts fast and easy.

The best way to determine where the glow-plug hole should be is to mark it on the body before you paint it, but no one ever remembers to do this! After you've painted, you can eyeball the measurement by looking in through the side and back windows, or push a short length of fuel tubing over the glow plug and see where it touches the roof panel and make the hole there. This technique won't work if the fuel tubing has to be so long that it flops over before it reaches the roof, but it's worth a try.

Pull-starter access is just a matter of pulling the handle out through a convenient window. You may find it helpful to use a section of fuel tubing as an additional standoff for the T-handle, especially if it's close to hot engine parts or gears. Then there's a risk of starter-cord failure because of its repeated rubbing against the body; to safeguard against this, pad the area of contact between the cord and the body with a section of fuel tubing. Silicone glue such as Shoe-Goo will hold the tubing on the body.

Exhaust ventilation

So far, we've discussed ways to get things into the body; now we need to talk about getting something out of the body. If the body impedes the exhaust flow, your engine may not run as well as it should, or it could stall. The body may also melt and become deformed; and your paint job will

be toast. Carefully determine where the stinger will exit the body, and make a large hole for it. As you drive, the body moves around quite a bit, and even at idle, engine vibration

causes it to move. There must be enough clearance to allow this movement without the body's sawing at the stinger or pulling the pipe off its coupling. Lexan is tough stuff, and the edge of a hole that's too small can actually saw the stinger off after an hour of rattling.



Here is an example of what a Lexan body can do to a stinger if its exit hole is too small. If this were let go any longer, the stinger could have been cut off.



Use a strip of scrap Lexan to cut a perfect 2-inch circle. Just anchor the strip at the center of the planned opening with a screw, then poke your knife blade through the strip 1 inch away from the screw. Now you can easily scribe a perfect circle. Remove the strip, cut from the center hole out to the hole's scribed circumference, and peel out the Lexan disc.

Antenna clearance

This isn't really a "nitro" tip; all cars have antennas. But nitro cars may need a little extra attention here, as the antenna tube is subject to the same danger of being cut off by the body as the exhaust stinger is. Prevent this by lining the edge of the antenna hole with fuel tubing.



This large antenna hole allows the body to be removed quickly without stripping the cap off the antenna, and it gives the antenna room to bend in a roll-over. For extra protection, fuel tubing has been installed around the edge of the antenna hole.

FINAL

Before hacking your new body for cooling, check your track's rule book. There is nothing worse than running a race and having your time disqualified because the body does not comply with track rules. Obviously, if you run just for fun, these regulations do not apply, but the tips mentioned here can improve your engine's cooling and may increase the body's life.

*Addresses are listed alphabetically in "Featured Manufacturers" on page 216. ■

Monster tire and rim guide

How big, how heavy, and what fits what

What separates a monster truck from a run-of-the-mill flatbed? The wheels and tires, of course. Since so much of a truck's personality—and performance—come from the big rubber, everyone wants to know which rim will fit which truck, which tire is the biggest, which is the lightest, and so on. I gathered up all kinds of tires and rims, sat down and measured, weighed and test-fit them until I felt like I was ready to re-tire. Get it? Retire? Is this thing on?

TIRES

NOTE: tire dimensions = width x outside diameter x inside diameter.

Tamiya*

Stock tire for: Clod Buster/Bullhead

Weight: .69 lb.

Size: 4.24x6.32x2.66

Fits rims of: OFNA Monster Blazer, Tamiya Juggernaut 2, Kyosho USA-1 electric/nitro, OFNA Monster Pirate

Part no.: 9805226 (pair)

Stock tire for: Juggernaut 2

Weight: .70 lb.

Size: 3.85x6.73x2.63

Fits rims of: Clod/Bullhead, USA-1 nitro/electric, Blazer

Part no.: 9805607 (tires and rims; 2 pair)

Kyosho*

Stock tire for: USA-1 electric

Weight: .55 lb.

Size: 4.26x6.43x2.66

Fits rims of: Clod/Bullhead, USA-1 nitro/electric, Blazer, Juggernaut 2, Pirate

Part no.: KYOC6220 (pair)

Stock tire for: USA-1 nitro

Weight: .54 lb.

Size: 4.26x6.43x2.66

Fits rims of: Clod/Bullhead, USA-1 nitro, Blazer, Juggernaut 2, Monster Pirate

Part no.: KYOC6218 (pair)

TIRE TIPS

• **Before you mount the tires,** check to see if the rims have ventilation holes. If they don't, make them yourself. Drill a small hole in the rim between the tire-mounting flanges. This allows air to flow into and out of the tire so it can deform and return to shape without bouncing—or worse, staying "flat" after compression due to a hard bump or jump landing.

OFNA*

Stock tire for: Monster Pirate

Weight: .78 lb.

Size: 4.53x6.38x2.97

Not compatible with other rims.

Part no.: 81166 (pair)

Stock tire for: Monster Blazer

Weight: .58 lb.

Size: 4.03x6.36x2.70

Fits rims of: Clod/Bullhead, USA-1 nitro/electric, Juggernaut 2, Monster Pirate

Part no.: 86063 (pair)

DuraTrax*

Stock tire for: Nitro Quake

Weight: .61 lb.

Size: 3.60x6.89x2.84

Fits rims of: Traxxas T-Maxx

Part no.: DTXC9725 (pair)

Traxxas*

Stock tire for: T-Maxx

Weight: .52 lb.

Size: 3.32x5.77x3.18

Not compatible with other rims.

Part no.: 4970 (pair)

Pro-Line Giant Trac*

Weight: .54 lb.

Size: 4.20x6.43x2.63

Fits rims of: Clod/Bullhead, USA-1 nitro/electric, Blazer, Juggernaut 2, Monster Pirate

Part no.: 1056-00 (pair)

• **When you mount tires on chrome rims,** remove the chrome plating where the bead of the tire contacts the rim; if you don't, the tire will simply pull off the chrome and spin on the rim. You can remove the chrome with sandpaper or a wire brush attachment in a rotary tool.

• **To remove the mold-release agent** from the tire and rim and allow the glue to stick better, clean the mating surfaces of the tire and rim with motor spray or rubbing alcohol.

• **Use a high-quality CA glue.** Pro-Line®, Trinity® and Team Losi® sell CA specifically designed for gluing tires. Stay away from store-bought "crazy"-type glues; they just won't cut it.

RIMS

NOTE: rim dimensions = width x outside diameter x inside diameter.

Tamiya

Stock rim for: Bullhead (same as Clod rim, but in chrome)

Weight: .11 lb.

Size: 3.93x2.66

Will also fit: Clod, Juggernaut 2

Part no.: 9335085 (pair)



Stock rim for: Clod Buster (same as Bullhead rim, but in white)

Weight: .08 lb.

Size: 3.93x2.66

Will also fit: Bullhead, Juggernaut 2

Part no.: 0555026 (pair)



Stock rim for: Juggernaut 2

Weight: .11 lb.

Size: 3.70x2.64

Will also fit: Clod/Bullhead

Part no.: 9805607 (tires and rims; 2 pair)



Kyosho

Stock rim for: USA-1 electric

Weight: .10 lb.

Size: 3.94x2.68

Not compatible with other trucks.

Part no.: KYOC6381 (pair)



Stock rim for: USA-1 nitro

Weight: .09 lb.

Size: 3.92x2.76

Will also fit: Clod/Bullhead (with Hooter adapter), Juggernaut 2 (with Hooter adapter)

Part no.: KYOC6396 (pair)



OFNA

Stock rim for: Monster Blazer

Weight: .15 lb.

Size: 3.53x2.86

Will also fit: Nitro Quake

Part no.: 81170 (pair)



Stock rim for: Monster Pirate

Weight: .14 lb.

Size: 3.92x2.99

Will also fit: T-Maxx (with OFNA adapter)

Part no.: 81165

Will also fit: USA-1 nitro, Clod/Bullhead (with Hooter adapter), Juggernaut 2 (with Hooter adapter)

Part no.: 81169 (pair)



ALUMINUM WHEELS

These are the ultimate hop-up items for a monster truck. Aluminum wheels are very tough and look fantastic, and because they are machined using CNC lathes, they spin truer than stock plastic rims. But there is a downside; at about \$75 a pair, aluminum rims are expensive, and if you manage to bend them, they will stay bent (however, they are virtually impossible to bend). Given the rims' expense, you may be hesitant to glue your tires to them. Go ahead and glue; if you need to make a change, simply boil the tires and rims in water or soak them in acetone to remove the tires.

JPS*

JPS is well known for aluminum wheels and has produced them for years.

They are offered in many styles and sizes. JPS has wheels to fit the Tamiya Clod Buster/Bullhead and Kyosho Nitro USA-1, and they now also offer rims for the Traxxas T-Maxx.



AEROTECH MODELS*

Aerotech is the new kid on the block, and it produces these beautiful precision wheels for the Traxxas T-Maxx. They run truer than stock and are very strong. Aerotech plans to offer more styles for the T-Maxx and other trucks.



DuraTrax

Stock rim for: Nitro Quake

Weight: .19 lb.

Size: 3.38x2.96

Will also fit: Monster Blazer

Part no.: DTXC9885 (pair)



Traxxas

Stock rim for: T-Maxx

Weight: .12 lb.

Size: 2.21x3.18

Not compatible with other trucks.

Part no.: 4972 (pair)



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Perry,
That video Rocks! I've been into R/C's since the early 80's and have seen a bunch of different R/C tapes, usually boring. Yours I can watch over and over. All the others I would fast forward, not yours I watched it all the way through. Great JOB! Will.G - (customer)

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4x4

Wheel Adapters

Many monster truck rims are similar in size but cannot be swapped from one brand of truck to another because of incompatible hub designs. That's where adapters come in. The options available are:

HOOTER CHASSIS*

With these aluminum adapters, you can mount Kyosho nitro USA-1 and OFNA Pirate rims on your Tamiya Clod, Bullhead and Juggernaut without any modifications. One side of the adapter fits inside the USA-1 and Pirate rims; the other side has been machined to fit the Clod's splined hex.



OFNA

OFNA's Pirate MT has the baddest tires on the monster truck scene, and with these adapters, you can bolt the required rims to your Traxxas T-Maxx without modification or choose another rim that accepts a 17mm hex hub. This opens the door to a variety of tire possibilities for the T-Maxx.



FS Hop-Upps speed kit for the Traxxas Nitro Rustler/Sport

Everyone wants his truck to be fast. FS Hop-Upps* offers this speed kit for the Traxxas Nitro Rustler/Sport. It includes a 54-tooth spur gear, engine spacers, an aluminum brace, all necessary hardware and instructions. This kit is designed for use with a 20- or 22-tooth clutch bell. FS Hop-Upps claims that this kit will add an extra 5mph to your truck.



SHOP TALK

I have a new Traxxas TRX Pro .15 engine with EZ-Start. I have a hard time getting my engine started. I have played with the settings and even installed a new glow plug. Nothing seems to work; I need help!
Greg Smith
Jacksonville, FL

It sounds as though your starter is working a little harder than it should. When the piston and sleeve are new and tight (or the engine has flooded), the starter has to fight the engine to turn it over. This causes the starter motor to pull more amps than normal. This amp draw reduces the amount of electricity flowing to the glow plug and prevents it from getting hot enough to effectively fire the engine. Try using a separate glow starter on the glow plug the first few times you fire up your engine. This will ensure that the glow plug is hot enough to ignite the fuel. Once the engine "frees up" after break-in, the EZ-Start will be able to turn the engine over and heat the glow plug more easily.

If you have any problems or questions about trucks, or if there is something you would like to see in "4x4," email me at kevinh@airage.com or send your letters to:
"4x4"
RC Car Action
100 East Ridge
Ridgefield, CT 06877-4606 USA

FOAM INSERTS

Some large-carass monster tires are molded of stiff rubber to hold their shape under the weight of the truck, but high-performance tires are too soft to perform without additional support from

a foam insert. Inserts prevent the tires from collapsing after a hard landing and keep them spinning true. Inserts are also good for pulling applications, as they allow less tire deformation.

SASSY CHASSIS*

Clod/USA-1 foam tire inserts—name serves as part no.
Fits: all trucks except T-Maxx



RC CAR KINGS*

Monsta-Foam monster-truck tire inserts—part no. RCK0200.
Fits: all trucks except T-Maxx



OFNA

Foam donuts—81168.
Fits: all trucks except T-Maxx



*Addresses are listed alphabetically in "Featured Manufacturers" on page 216. ■

Keep a clean, cool running machine

Ever notice that brown, sometimes black, buildup on the outside of your engine? It's generally referred to as "varnish." This crud not only looks bad, but if left unattended, it can also reduce your engine's radiant cooling ability. "Sounds bad," you say, "but have you

ever tried cleaning that stuff off?" I have indeed, but there is a way to get the gunk off relatively easily. Demon Clean is a new product meant just for RC engine cleaning. Here's how to use it:

1 To give Demon Clean a thorough test, I used it on an exhaust stack and muffler from an old 4-stroke engine (4-strokes have higher exhaust temperatures than 2-strokes owing to the way they breathe). Look at the black carbon baked on the pipe. If you ever have this degree of buildup on a 2-stroke exhaust pipe, you've "cooked" your engine. I figured that if Demon Clean removed this stuff, it would tackle any varnish our 2-stroke engines could serve up.

Since the gases have cooled slightly by the time they reach the muffler, the muffler varnishing is not as severe as the pipe's. This muffler varnish is about as bad as you should ever get with a 2-stroke.

BEFORE



2 Always use rubber gloves and eye protection, and work in a well-ventilated area.



3 Apply a thick layer of Demon Clean; don't be cheap with the "goo." Let it stand for 45 minutes or so.



4 For heavily varnished parts such as that seen on this charred pipe, use a brass or copper brush to remove the baked-on crud after the parts have soaked in the Demon Clean for the specified time. Don't use a steel brush because it will scratch aluminum engine parts; that's not good.

5 All the baked-on pipe crud has been removed, but this 4-stroke pipe got so hot that the metal is now discolored. Cleaning will never change this. It's kind of like the discoloration you see on full-size motorcycle pipes close to where they exit the head. The results you're likely to obtain with a 2-stroke exhaust system are more closely demonstrated by my results with the muffler; looks pretty good, especially considering how old this muffler is.



AFTER

I've tried Demon Clean on the worst possible varnish, and it does a great job of cleaning my mills' heads, pipes and manifolds. This stuff can also be used on internal parts, but if your piston has a considerable varnish buildup caused by overly hot running, chances are you're ready for a new piston and sleeve.

HOT-WEATHER RACING

Q Chris, I love my HPI Nitro Star 15 engine—when it runs. I hate that I can not prevent it from overheating and keep it running. I live and race in the Atlanta, GA, area, and it gets very hot during the day. We race in an open parking lot with typical afternoon temps of over 95 degrees. I have tried several solutions, but I can not figure this engine out.

Richening the fuel mixture does not seem to affect the running temperature but it does make fuel consumption much worse—so bad that the car can't complete a 5-minute qualifier. I also installed a taller second gear in an effort to improve fuel economy and lower the rpm to keep the engine's temp down. That did not solve the overheating problem.

Then I tried 10-percent-nitro (down from 20 percent). I ran the engine rich to ensure enough lubrication, but it still overheated in the afternoon (although I was able complete the first qualifier early in the day). I have talked with other club members who run this engine, and all have similar problems.

My next question concerns the cylinder head. This may seem like a stupid question, but is the stock head cast or machined? It appears to be cast. I have talked to several drivers running other NovaRossi engines, and the only difference that I can see is the cylinder head. They don't have overheating problems. If you have the time, I would love to read your solutions to my problem. I'll be patient; I can only imagine how many emails like this you receive in one day.

Kent Easterday

A OK, Kent, let me first say I like HPI products a lot, but all products have their strengths and weaknesses. In HPI's case, it's the small, stock, cast head some of their otherwise good engines are equipped with. So you were quite right to look to your engine's heat-sink head as a potential source of your overheating problem. In moderately warm temperatures, this head does a fine job of cooling, but once you get into the 90s, it just isn't up to the task. If you add high humidity to such a high ambient temperature, you're really in trouble.



Death to tiny heat-causing mufflers and their extension tube partner in crime!

Remember, alcohol is the main component of glow fuel, and unlike gasoline, which is hydrophobic (repels moisture), alcohol is hygroscopic (absorbs moisture), and that further raises combustion-chamber temperature. Unlike the Nitro Star 15SS,

which has a tall, machined, heat-sink head, your Nitro Star 15 has a cast head. Get rid of it and install a good, machined, heat-sink head. HPI and other companies offer one for your engine. That's heat-busting modification number one.

Next, if your car doesn't already have one, install some sort of tuned muffler system. Some HPI cars have one; some don't. If you car is equipped with one of those small expansion-chamber mufflers with a hateful, heat-causing extension tube, don't run it even once more with this restrictive setup. For optimum cooling, a 2-stroke alcohol/nitro engine needs to breathe freely at both the intake and exhaust ends. That horrible little muffler with its extension tube is choking off the exhaust end and driving the temperature up. Get a good tuned system and you'll gain more power while experiencing lower running temperatures. Who could ask for more?

With these two changes, your car will be equipped for hot-weather running. But remember: this doesn't mean that you can now lean your engine out to the last rpm. Run it rich, Kent. ■

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WWW.AAAModel.com



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Trinity Brush Magician

Racers are always looking for that extra edge, that little something that makes them faster than their competition. If you race electric vehicles, that "little something" is often a motor tweak; you've no doubt tried cutting the comm, changing the brushes and brush springs and increasing the timing. Customizing the shape of the brush face is another option, and Trinity* has a tool just for this type of work. The precision brush cutter allows you to accurately slot brushes to maximize power; let's see how easy it is to use.

WHAT IT DOES

Trinity's Brush Magician bolts to a standard RC motor (not included). The motor is used to spin a cutting disc (included) that slots the brush. Hmmmm You could just do that with a rotary tool—right? Well, yeah; but there's more to this tool! What makes the Brush



Magician unique is the brush holder that allows you to feed standup and laydown brushes into the cutting wheel precisely, to cut slots that are parallel with the sides of the brush. It gets better: the height of the cutting disc relative to the brush can be minutely adjusted, making it simple to cut any slot configuration and even to make repeated passes for half-cut brushes and similar designs.

HOW IT WORKS

The Brush Magician has three major components: a chuck for the cutting disc (which is mounted to the motor shaft as a pinion would

be); the base—a top-hat-shaped cylinder to which the motor is mounted via the can's mounting holes (mounting screws are included); and the brush collar, which slides over the motor/base assembly and has machined channels to accept standup and laydown brushes. A pair of thumbscrews adjusts the height of the cutting disc: one acts as a depth stop; the other locks in the setting.

TESTING

After assembling the Brush Magician with a stock motor and a 2-cell battery (which is plenty of power for it), I prepared to slot a brush by setting it into the appropriate channel and sliding it up to the cutting disc (with the power off) to check the position of the disc relative to the brush face. I wanted the slot to be centered on the brush and had to adjust the Brush Magician to achieve this. It took only a second to loosen the side thumbscrew, adjust the depth with the top thumbscrew and then lock in the setting.

To make the cut, all I had to do was power up and press the brush against the cutting disc. The high



Above: the cutter assembled with the motor installed; notice I have set the disc's height so it will cut the center of the brush. You can cut at any height on the brush by adjusting the thumbscrews.

Below: the disassembled brush-cutting kit. An optional serrating tool is available.

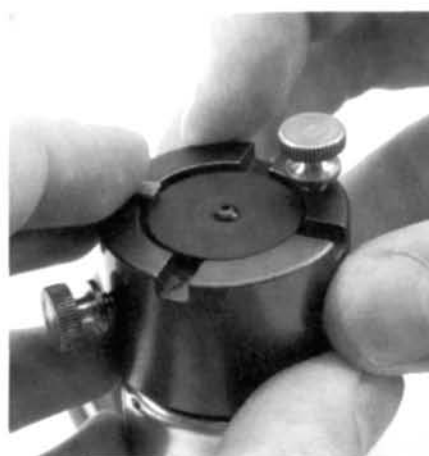


Likes

- High-quality construction.
- Adjustable cutting-disc height.
- Cuts both standup and laydown brushes.

Dislikes

- Expensive. Granted, the materials and construction merit the price, but 45 bucks is 45 bucks.



Carefully slide the brush against the rotating disc. You should be able to cut a set of brushes in seconds.

walls that surround the cutting disc make it difficult to cut yourself (at worst, you might "sand" your finger), but use caution nonetheless; safety glasses are a good idea, too. When you've achieved the depth you want, just back the brush off the disc. Exactly how deep the slots should be, how many you should cut, etc., is a topic for an entire article, but whichever slot configuration you need, the Brush Magician will be able to cut it.

Part no.—TK3101.

Price—\$44.99.

—Greg Vogel

Racer's Edge Tunnel Car Stand

Off-road chassis with raised sides (like those of the Team Losi Double- and Triple-X series and Associated B3/T3) increase cornering clearance but tend to teeter-totter on flat car stands. Racer's Edge* now offers a stand that features a lowered center section to accommodate such chassis. The stand is formed of an $\frac{1}{8}$ -inch-thick acrylic for a sturdy base, and it has foam-rubber pads on both sides to prevent the car from sliding around. We found it easy to work on our "tunnel chassis" cars with the Racer's Edge stand, particularly when installing electronics.

Part no.—RE 0037B.

Price—\$10.50.



FMA Direct Versapulse Charger

Battery chargers have come a long way; my first one was a timer type that was not kind to my batteries and did not do a good job of charging my packs to their full capacity. For less than I spent on that old "wind-up" charger, FMA Direct's* Versapulse (Model FC600) offers peak-charging convenience with AC or DC power and adjustable amperage. I put the Versapulse through its paces to see whether it's a good value or merely inexpensive.

FEATURES

- **LED display.** Three lamps indicate power input, slow charge and fast charge.
- **Automatic peak detection.** The Versapulse is a "delta-peak" charger; delta is the Greek sign for change, and the Versapulse looks for a change—a drop—in voltage as a signal that it has fully charged a pack. This technology ensures that the pack is fully charged without overheating the cells.
- **"Charge complete" and "Pack fell off" beepers.** A fairly loud beep sounds when the charge is complete and if the pack is disconnected during the charge cycle.
- **Adjustable amperage.** An analog dial lets you set the maximum charge current and is calibrated in 0.5A increments.
- **Reverse-polarity protection.** A 7.5A automotive-type fuse accessed from the front panel protects the unit if you inadvertently connect the battery leads backward. The fuse is a standard automotive type available for a reasonable price at any auto-supply store.
- **AC/DC operation.** The Versapulse can charge from an AC power source or a 12V DC source, such as a car battery. It requires a standard "computer"-type power cord for AC operation; paradoxically, FMA does not include one. Small alligator clips on a short cord are provided for DC use.

OPERATION

Unlike other chargers, the Versapulse does not include any type of output wire or plug. Spring-loaded connectors such as those on speakers and stereo systems are provided and can accommodate a 12-gauge battery wire without any problem. I have found that these clips work better if the wire has not been tinned, but this allows the possibility of fraying and the stray strands shorting out.

The unit has only two controls, which is a good thing; I like simple. A rotary knob sets the current output, and a button starts the fast-charge mode. The available charging current depends on the mode—AC or DC—and the number of cells to be charged. Three LEDs indicate input voltage, slow charge and fast charge.

When you connect a battery, the slow-charge LED indicates that the unit is properly hooked up. When you press the start button, the fast charge begins and the fast-charge LED is illuminated. At the completion of the fast charge, the Versapulse beeps loudly; push the starter button twice to stop the beeping—or to stop the Versapulse mid-charge, if you wish.

Likes

- **AC/DC peak-charging at a very affordable price.**
- **Simple, reliable operation.**
- **Adjustable amperage allows the unit to charge receiver packs and other small cells.**

Dislikes

- **DC connectors short, and the clips are too small for car-battery terminals.**
- **AC charge current is on the low side.**
- **AC cord and output connectors are not included.**



TESTING

Using my Fluke digital voltmeter, I checked the accuracy of the current-control knob and found that input current was within 10 percent of the indicated amperage; that's about as good as you can get with an analog control that is not unit-calibrated. I did this test with a 6-cell pack. As the number of cells is increased, the current will taper off, because of the pack's higher voltage. The maximum voltage I measured at the charger's output was 16 volts. While the Versapulse was charging, the AC supply only got warm; indicating that the power supply is conservatively rated and should prove to be reliable.

If you connect the battery wires backward, the fuse will pop immediately—inconvenient, but it sure beats having to replace the charger. Be sure you have a spare fuse or two, as none are provided, and a blown fuse could ruin your day in the field. Since the fuse is on the front panel, it is very easy to replace.

I tested the Versapulse with 6-cell packs and had no difficulties peaking them to full capacity. To check that the packs were being charged to capacity, I first charged them with my Novak Millennium, then I recharged them and noted how many more milliamps they accepted. After discharging and resting the packs, I peaked them on the Versapulse then recharged them on the Millennium to see whether it would add significantly more to the

Continued on page 194

Megatech .21 Tuned-Pipe System

Silicone couplers have been the standard method of joining pipes and manifolds forever, but there is a better way: spring-coupled pipes are gaining popularity, and Megatech* has a pipe and manifold set just for .21-powered machines. The system features a blue-coated pipe with welded pressure tap, manifold, manifold spring, two gas-kets (one for the engine, one for the pipe) and coupler springs. The spring-loaded system eliminates the chance of coupler blowouts, which are common with silicone-sleeve couplers.

We at *RC Car Action* replaced the stock pipe on our DuraTrax Axis with the Megatech pipe system. There was a slight increase in top-end performance, and the pipe pieces never came apart, even on the hardest nosedives with Kevin behind the wheel.

Part no.—MTCSA201
Price—\$49.95



Continued from page 192

capacity of the Versapulse charge compared with the Millennium's peak charge. I found no significant difference, so I'm very confident the Versapulse does its job well—although slowly. Because of the low current in the AC mode (2.8 amps maximum), it took an hour to charge a 2000mAh pack. Using the DC mode, which has almost double the current rating at 4.2 amps, it would take about half as long. Charging at a lower current is actually better for longevity of the pack, if you have the time.

In the slow-charge (trickle) function, there was a discrepancy between the stated specification and my measurements. The instructions say that the unit should deliver a 200mAh trickle charge, yet I never measured more than 100mAh, and this was only when the pack voltage was very low. Typically, the trickle charge was about 85mAh. On FMA Direct's website, it says that the trickle will be 15 percent of the knob setting, but I found that turning the knob had no effect on the trickle-charge rate. This is not a big issue for me, since I generally don't trickle-charge my packs, and the lower amperage makes a very slow charge even slower.

It is worth noting that if you deep-discharge a pack—for example, by installing a 30-ohm resistor on it overnight—you might not be able to charge the pack immediately after removing the resistor. Under some conditions, the charger does not detect the pack when it is plugged in, and it will not begin any charge—fast or slow. This is because the charge output leads may sit at 16.5 volts or zero volts when the unit isn't attached to a pack. When you first switch the charger on, or if the output leads are shorted, the leads register zero volts, and the unit will not start a charge on a deeply discharged pack. If you put a charged or partially charged pack on the charger and then remove it, the output returns to 16.5 volts, and the Versapulse will charge the deeply discharged pack it did not recognize before. If you deep-discharge your packs, your best bet will simply be to remove the discharge device a couple of hours before you intend to charge them. This will allow the voltage to "come back up," and you shouldn't have any trouble peaking the packs (that's good advice when using any peak charger).

Despite some minor shortcomings, at \$49.95, the Versapulse is a good value. It beats timer-type chargers, as it will fully charge a pack without your having to worry about over-charging, and its adjustable charge rate ensures that a variety of cell types can be charged.

—Jim Donelson

Kyosho Pit Boxes

Kyosho now offers tough transparent plastic custom-fit parts boxes and battery cases for touring-car springs, spur gears, pinions, saddle packs and crystals. Each box has a locking tab on the outside, and inside, a



firm foam liner holds parts in place. The parts boxes definitely make it easier to find what you need and clean up your toolbox, but the saddle-pack case is of limited use because it only holds one pack. Each case measures 7.75x3.25x1.25 inches.

Pit cases—KYOP8000 (pinion gears), KYOP8001 (spur gears), KYOP8002 (saddle pack), KYOP8003 (shock springs), KYOP8004 (radio crystals); \$17.99 each.

Racer's Edge Body Mounts and Wing Mounts for Team Losi

Here's a real frustration saver: a machined-aluminum rear body mount for Team Losi's Triple-X. This mount allows you to remove the two hard-to-reach body posts and secure the rear of the body via a single body post in the roof. The blue-anodized part is bolted directly to the wing mounts and recycles one of the stock plastic body mounts.

Less functional (but trick) are the aluminum wing mounts for the Team Losi Triple-X and Double-X4. They are direct replacements for the stock units and are impossible to break in a roll-over (but will transfer loads to the shock tower, so be careful).

Body mount—RE 7031B, \$14.99.

Wing mount—RE 7032B, \$37.99.



DuraTrax Ni-Cd Battery Conversion Kit

Tired of spending a ton of dough on alkaline batteries for your transmitter? Ni-Cds are the answer. Instead of buying individual cells, try DuraTrax's convenient radio-specific setups. Each kit includes 8, 700mAh Sanyo cells and a 2- to 3-hour 9.6V DC charger with jack for in-radio battery charging. Charger polarity is specific to your radio system, so be sure to buy the model that matches your transmitter. We tried a set in a JR-R1 with good results. The Ni-Cds don't last as long as alkalines, but they are rechargeable; that's the point! For JR—DTXP4008; Airtronics, Hitec—DTXP4009; Futaba, KO, Tower—DTXP4010; \$39.99.

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ALABAMA

Hobby Raceway, 15717 Beacon Point Dr., Tuscaloosa, AL 35406; Don, (205) 333-8679



Hobbytown USA Raceway, 450-Q Schillinger Rd., N., Mobile, AL 36608; Rob & Kari Baker, (334) 633-8446



Lagoon Park R/C Raceway, 2730 Lagoon Park Dr., Montgomery, AL 36109; Alex Love, (334) 272-6438



Phenix Raceway & Hobby, 2006 Opelika Rd., Phenix City, AL 36867; Chris Watson, (334) 298-9786; <http://www.xoom.com/PhenixHobby>



R/C Hi-Tech Raceway, 3303 Meridian St., Huntsville, AL 35811; Rick Chambers, (205) 539-1347.



R/C Thunder Tracks, 1530 Schillinger Rd., Mobile, AL 36675; for mail, use 8125-2 Moffett Rd., Semmes, AL 36575; Jerry Hurst, (334) 645-2787



ALASKA

Fairbanks R/C Car Club, 510 Juneau Ave., Fairbanks, AK 99701; Dan Anderson, (907) 456-5494



ARIZONA

Craft Barn Raceway, 11200 E. Hwy. 95, Yuma, AZ 85365; Matt Poston, (520) 726-1946



Hobbytown Raceway, 1102 E. 22nd St., Tucson, AZ 85704; (520) 882-8888



Hobbytown U.S.A., 5030 E. Ray Rd., Phoenix, AZ 85044; Linda McFarland, (480) 598-5282



Kiwanis Park R/C Raceway, 855 S. Magnolia Ave., Yuma, AZ 85364; Jim Schulz, (520) 783-5378



Quarter Flash's Squirtin' Dirt Raceway, 16301 S. Santa Rita #C, Sahuarita, AZ 85629; Dave, (520) 625-9274



R/C Sports Mania, 3550 N. 35th Ave., Phoenix, AZ 85017; Brian Dick, (602) 278-3671



Scottsdale R/C Raceway, 3023 N. Scottsdale, Scottsdale, AZ 85251; Scott Anfinson, (602) 945-2186



Speedway Hobbies, 2710 N. Steve's Blvd., Ste. 8, Flagstaff, AZ 86004; Gary McAllister, (520) 714-1566



ARKANSAS

Alison Offroad RC Raceway, 6320 Thibault Rd., Little Rock, AR 72206; Steve or Coop, (501) 490-1227



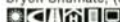
Arkansas R/C Car Association, 101 W. 52nd St., N. Little Rock, AR 72118; William Byrd, (501) 753-1286



Airport Speedway, 1521 Airport Loop, Rogers, AR 72756; Mike Dollar, (501) 636-7123



Grand Slam Superspeedway, 5300 S. Zero St., Ft. Smith, AR 72901; Bryon Shumate, (501) 648-1994



Hobby Town USA, 356 E. Joyce, Fayetteville, AR 72703; Darrell Irvin, (501) 571-3730



Sparks R.C. Raceway, 7194 Greene 721 Rd., Paragould, AR 72450; Tommy Sparks, (501) 239-3606



CALIFORNIA

California R/C Raceway, 1230 N. Kramar, Anaheim, CA 92806; Taka, Sid, or Charlie, (714) 630-9300



Castle Hobbies, 14918 Camden Ave., San Jose, CA 95124; (408) 377-3771



Delta R/C Speedway & Hobbyshop, 1201 W. 10th St., Antioch, CA 94509; (925) 778-2965



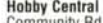
Desert Hobbies, 28-401 Date Palm Dr. Cathedral City, CA 92234; Mike Beall, (760) 320-9442



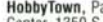
Gooch Raceway & Hobbies, 115C N. Chevy Chase Dr., Glendale, CA 91206; Devin Last (818) 242-2380, fax (818) 242-0525



Hobby Central II Raceway, 13461 Community Rd.; Poway, CA 92064; John, (619) 513-0373



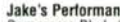
HobbyTown, Parktown Plaza Shopping Center, 1350 S. Park Victoria Dr. #21, Milpitas, CA 95035; (408) 945-6524



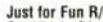
Hot Rod Hobbies, 25845 San Fernando Rd., #21, Saugus, CA 91350; Rod Weisbaum, (805) 255-2404



Jake's Performance Hobbies, 6650 Commerce Blvd. #21, Rohnert Park, CA 94928; Jake, (707) 586-3375



Just for Fun R/C Raceway, 509 S. State St., Ukiah, CA 95482; Don, (707) 462-7305



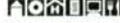
Lucerne Valley Raceway, 32800 Old Woman Springs Rd. #4, P.O. Box 2047, Lucerne Valley, CA 92356; Frank Rodrigue, (760) 248-7305



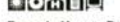
M n M Hobbies, 4225 Prado Rd., Ste. 103, Corona, CA 91720; Joe Stanovich, (909) 272-3545



Paradise Hobbies, 491 Pearson Rd., Paradise, CA 95969; David Lafabregue, (530) 877-6477; fax (530) 873-2377



Racer's Haven Raceway, 7401 White Ln. #12, Bakersfield, CA 93309; Martin Buchannan, (805) 835-0441



Radio Control Products, 201 E. Magnolia Blvd. #148, Burbank, CA 91502; Tab, (815) 846-4208



Rams 1/8-scale Gas and 1/16-scale Gas On-Road, Mission College, Lot B, 3000 Mission College Blvd., Santa Clara, CA 95054-1897; Steve Tsuruda, (415) 675-5609



Rattlesnake Raceway, 16470 Benson Rd., Cottonwood, CA 96022; Mel or Mike Fisher, (530) 347-7215, email: RC-geezers@webtv.net; website: <http://members.xoom.com/CAR-RCORR/Race.html>



Rescue Mini Speedway, 4018 Green Valley Rd., Rescue, CA 95672; Bruce Pease, (530) 621-3948



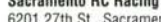
Ripon R/C Speedway, 701 N. Acacia Ave., Ripon, CA 95366; Dan Tanis, (209) 599-5160



R.O.C.K.S., 2525 N. Texas St., Fairfield, CA 94533; Mike, (707) 207-0305; <http://members.aol.com/solanorock>



Sacramento RC Racing and Hobbies, 6201 27th St., Sacramento, CA 95824; Andreas Muller, (916) 424-4001, email: andreas123@earthlink.net; website: www.77sunset.com



Showtime R/C Speedway, 3709 Abbott Dr., Bakersfield, CA 93312; Grant or Karen, (805) 589-0493



Simi Valley Groundpounders, 392 C - East Easy St., Simi Valley, CA 93065; Jack Kasten, (805) 584-8211



So. Cal R/C Raceway, 19118 Brookhurst St., Huntington Beach, CA 92646; Jim Blauevelt, (714) 963-7484



Speedworld Raceway, 90 Corporation Yard Rd., Roseville, CA 95678; Billy Bowerman, (916) 783-8864



Tri-Valley Auto Racers, Livermore Elks Club, 940 Larkspur, Livermore, CA 94550; Mike Stone, (510) 455-6833



Ultimate Hobbies, 2378 North Orange Mall, Orange, CA 92665; Cliff Murukami, (714) 921-0424



COLORADO

MHOR R/C Raceway, 15540 East Batavia Dr., Aurora, CO 80011; Jess Brockman, (303) 343-0151



Race of Champions R/C Speedway, 300 West 53rd Pl., Unit B, Denver, CO 80216; Dan DeWild, (303) 296-4908



Valley West Off-Road RC Club, 447 30 1/4 Rd., Grand Junction, CO 81504; Waymond Williams, (970) 242-8846



CONNECTICUT

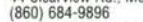
Central CT Auto Racers, Davis Hobbies II, 45A Welles St., Glastonbury, CT 06033; (860) 633-3056



East Lyme R/C Kar Klub, Society Rd., East Lyme, CT 06333; Howard Estorm, (203) 483-9201



K/N R/C Speedway Inc., West St., Stafford Springs, CT 06076; for mail, 44 Clearview Rd., Moodus, CT 06469; (860) 684-9896



Racing and Entertainment Center, 29 Olcott St., Manchester, CT 06040; Peter Tierinni, (860) 643-4768



R/C Madness, 640 Enfield St., P.O. Box 64, Enfield, CT 06082; Christopher Marcy, (860) 741-6501



Xtreme Radio Control, 469 Danbury Rd., New Milford, CT 06776; Paul or Pete, (860) 354-4703



DELAWARE

The Hobby Outlet: Tracks of the Outlet, Salisbury Rd., Dover, DE 19901; Steve, (302) 697-8350



Hobby Stop Speedway, RD4, Box 100, Rte. 13, Seaford, DE 19973; Remy Haynes Jr., (302) 629-3944



FLORIDA

B&T RC Central, 811 Playground Rd., Ft. Walton Beach, FL 32547; Tim Miller (850) 863-1666



Broward County R/C Race Club, Mills Pond Park, Ft. Lauderdale, FL; Ed Decemero, (954) 525-3304



Burton's R/C Raceway, 4215 Mustang Rd., Lakeland, FL 33803; Louie Burton, (941) 665-1322



Coral Springs Roadrunners, P.O. Box 9632, Coral Springs, FL 33075; John Argentino, (954) 925-8284



Dan's Hobbies, 17880 South Dixie Hwy., Miami, FL 33159; Maxy Velazco or Eric Vazquez, (305) 471-8133



Extreme Raceway and Hobbies, 4010 N. Lois Ave., Tampa, FL 33614; Mike Bevel, (813) 877-7223



Farmer's Hobby Shop & Raceway, 5006-3 E. Broadway, Tampa, FL 33619; Greg Cardone, (813) 248-3314



KEY TO SYMBOLS

	Indoor		Concrete
	Outdoor		Asphalt
	Off-road		On-site hobby shop
	Oval		AC power
	Dirt oval		Auto lap counting
	Carpet		Food available

Paul's Stadium Raceway, 4511 W. Dr. M.L. King Jr. Blvd., Tampa, FL 33614; Paul Surette, (813) 872-8662

RC/Track

PBG R/C Motor Park, 6351 Barbara St., Palm Beach Gardens, FL 33418; Doug Gleason, (561) 743-9791 or Tim Case, (561) 627-2608

RC/Track

Pro Hobbies Speedway, 715 N. Lake Pleasant Rd., Apopka, FL 32712; (407) 886-4615

RC/Track

Port St. Lucie Racing, 3626 SW Rivera St., Port St. Lucie, FL 34953; Frank Spadavecchia, (561) 336-8711

RC/Track

Randy's RC Raceway, 7744 Glenwood St., Clermont, FL 34711; Randy Zimmer, (352) 242-0557

RC/Track

River City R/C Car Club, 9711 Sharing Cross Dr., Jacksonville, FL 32257; Bill Fraden, (904) 268-1948

RC/Track

Santa Cruz Race Track, 8150 NW 71 St., Miami, FL 33166; Maxy or Eric, (305) 471-8133; email: maxy@iamnet.com; web: www.danshobbies.com

RC/Track

Sea Coast Watercraft and Hobby, 3119 Barrancas Ave., Pensacola, FL 32507; Vic Lakatos, (850) 457-1493

RC/Track

South Daytona R/C Raceway, 2121 S. Ridgewood Ave., South Daytona, FL 32119; Mike Bean, (904) 426-6481

RC/Track

South Palm Beach Racers, South County Regional Park, West Boca Raton, FL 33486; Mike Fazio, (561) 338-5367

RC/Track

Superior Hobbies R/C Parking Lot Racing, 430 E. Hwy. 436, Ste. #106, Casselberry, FL 32707; Rob Michael, (407) 834-9299

RC/Track

Tampa Bay R/C Club, P.O. Box 10224, St. Petersburg, FL 33733; Dick Gillette, (813) 526-0744

RC/Track

Tampa Hobbytown R/C 4 Slot Car Raceway, 15702 N. Dale Mabry, Tampa, FL 33618; Max and Judy Rosenroth, (813) 968-7233

RC/Track

Tropical R/C Raceway, Tropical Park, Miami, FL 33155; Pat Butler, (305) 772-4122

RC/Track

University RC Speedway, 8475 Cooper Creek Blvd., University Park, FL 34201; Mike Boylan, (941) 358-7047

RC/Track

Warehouse Hobbies, U.S. Rt. 27 South, Winterset Motel, Sebring, FL 33872; Tony and Pam Castronova; (941) 699-1231

RC/Track

GEORGIA

Anthony's Victory Lane, 129 East Hwy. 80, Pooler, GA 31322; Anna Stephens, (912) 748-0847

RC/Track

Buliet Raceway and Hobby, 3735 Old Flowery Branch Rd., Oakwood, GA 30566; Mark Taaffe, (770) 534-9229

RC/Track

Dalton Raceway, 3036 Parquet Rd., Dalton, GA 30720; (706) 226-6699

RC/Track

Echeconnee Superspeedway, 2149 Richardson Dr., Macon, GA 31206; Andy Thompson or Cliff Kline, (912) 788-8731

RC/Track

Emerald City R.C. Speedway, Highway 40 East, East Dublin, GA, 31021; Terry Cook, (912) 272-3856

RC/Track

The Flight Box Hobby Shop, 3134-C Rockmart Rd., S.E. Rome, GA, 30161-6826; Leslie Duke, (706)-234-3014

RC/Track

Hobby Town Raceway, 2301 Airport Thruway, Columbus, GA 31904; Frank Bastos, (706) 660-1793

RC/Track

Lake Mayer Raceway, 1430 Dale Dr., Savannah, GA 31406; (912) 598-9709

RC/Track

The Racer's Edge, 1530 Hwy. 19 N., Thomaston, GA 30286; Roger or Mark Walls

RC/Track

Sandy Cross Speedway, Rt. 1, Box 1071, Hwy. 51, Royston, GA 30662; Morris Phillips or Wayne Fowler, (706) 245-9573

RC/Track

Shiloh R/C Raceway, 6362 Shiloh Rd., Hahira, GA 31632; Doug Burnett, (912) 794-2507

RC/Track

Silver Wings Raceway, 5611 Riverdale Rd., College Park, GA 30349; M. Bradshaw, (770) 991-2225

RC/Track

Stinger RC Super Speedway, 3769 Maysville, Rd., Commerce, GA 30529; Deric Sauls, (706) 335-5006 or (706) 335-9044

RC/Track

Sugar Bowl R/C Speedway, 5272 Nelson Brogdon Blvd., Sugar Hill, GA 30518; Shelley Bailey, (770) 945-6709

RC/Track

HAWAII

Garden Isle R/C Racers, 5855 Ahakea St., Kapaa Kauai, HI 96746; Arnold Morales, (808) 823-0856

RC/Track

Kakaako Water Front Park Dragway, 98-029 Hekaha St., Bay #32, Alea, HI 96701; James Inkyo, (808) 487-5155

RC/Track

Mau R/C Racing Association, 230 Hana Hwy., Unit 11, Kahului, HI 96732; Garret or John, (808) 873-0376, (808) 893-0116, or (888) 646-6687

RC/Track

Pearl City Raceway, 98-029 Hekaha St., Bay 32, Alea, HI 96701; James Inkyo, (808) 487-5155

RC/Track

Radio Control Hawaii, 474 Kalanikoa St., S-104, Hilo, HI 96720; Glenn Shiroma, (808) 935-5629

RC/Track

Team PRC Racing Club, 176 Mamo St., Hilo, HI 96720; Charlie, (808) 935-3561

RC/Track

IDAHO

Almota Ranch Speedway, 1732 Eldridge Ave., Twin Falls, ID 83301; Casey Clements, (208) 733-8219

RC/Track

Boise Hobby Raceway, 4516 Overland Rd., Boise, ID 83705; Jim, (208) 363-9555

RC/Track

Capital Dirt Burners, 1612 Latah, Boise, ID 83705; Jim Small, (208) 433-1631

RC/Track

Dirt Stuff Plus, 5344 N. Yellowstone Hwy., Idaho Falls, ID 83401; Brian Krah, (208) 522-7576

RC/Track

ILLINOIS

Adams R/C Raceway, 7201 S. Adams, Bartonville, IL 61607; Ray Tigue, (309) 633-9300

RC/Track

AJ's Raceway & Hobby, 10211 Kesling Rd., DeKalb, IL 60115; A.J. Schultz, (815) 756-2772

RC/Track

C.I.R.C.A., 905 Bibbs St., Jacksonville, IL 62650; Sport 'n' Hobby, (217) 245-1375

RC/Track

C&R Hobbies, 39 E. Jones, Milford, IL 60953; Ray, (815) 889-4073

RC/Track

Depot Hobby Raceway, 180 S. Seminary St., Galesburg, IL 61401; (309) 342-9323

RC/Track

H & H Hobbies and Raceway, 9346 Virginia Rd., Lake in the Hills, IL 60102; Mike Hollingsworth, (847) 458-1777

RC/Track

Hans' RC Race Place, 2051 2100th St., Atlanta, IL 61723; Hans Bishop, (217) 648-2915

RC/Track

HobbyTown Raceway, 2103 N. Veterans Pkwy., Bloomington, IL 61701; Gary Pritts, (309) 664-4451

RC/Track

Leisure Hours R/C Raceway, 24121 W. Theodore, Bldg. 1, Plainfield, IL 60544; Scott Hill, (815) 439-1777 (track), (815) 439-1477 (shop)

RC/Track

Machesney Park, 1220 Shappert Dr., Machesney Park, IL 61115; (815) 282-1311

RC/Track

Marty's R/C Hobby, 1335 E. Broadway, Bradley, IL 60915; Gail or Marty, (815) 933-8441

RC/Track

Monroe R/C Raceway, 26049 Ridgeland Ave., Monroeville, IL 60449; Roy or Roberta Moody, (708) 534-2422 (track), (708) 799-5597 (office)

RC/Track

Outlaw R/C Speedway, 1614 Broadway, Mattoon, IL 61938; (217) 234-6229

RC/Track

Pontoon Raceway, 3670 St. Rte. 111, Granite City, IL 62040-4304; Pat or Skip, (618) 931-1206

RC/Track

Quad Cities Radio Raceway, 541 1st Ave. North, Silvis, IL 61282; Tom Bedwell, (309) 751-9663

RC/Track

Radio-Active Raceway, 751 N. Bolingbrook Dr., #15, Bolingbrook, IL 60440; Jim, (630) 759-7557

RC/Track

Rector's R/C Raceway, RR 3, Box 104, Albion, IL 62806; Tim Wolfe, (618) 842-9379 (M-F), (618) 446-3282 (Sun.)

RC/Track

RMR Raceways, 19091 West Casey Rd., Libertyville, IL 60048; Ron Rawald, (847) 549-6963

RC/Track

Shiloh Eagles Superspeedway, 308 N. Virginia Ave., Belleville, IL 62220; (618) 277-6030

RC/Track

SIRCAR Raceway, 1200 N. Marion, Carbondale, IL 62901; (618) 549-5885

RC/Track

Stanton Hobby Shop, 4718 N. Milwaukee, Chicago, IL 60630; Kevin Kane, (773) 283-6446

RC/Track

Valley Farms R/C Raceway, 706 Bypass 20, Cherry Valley, IL 61016; Dean or Debbie, (815) 332-4516 or (815) 547-5984

RC/Track

Wep Speedway, RR #2, Box 44, Lawrenceville, IL 62439; Bill Poe

RC/Track

INDIANA

BD R/C Off-Road Racing, 13255 Chippewa, Mishawaka, IN 46545; Betty or Bob, (219) 257-1098; 02kie@aol.com; www.angelfire.com/in/bdrcffroad/index.html

RC/Track

Bremen Racing Ent., 308 N. Bowen, Bremen, IN 46506; Dale Heuberger, (219) 546-3807

RC/Track

The Dirt Yard, 1117 W. Epler Ave., Indianapolis, IN 46217; Keith Dudas, (317) 786-6417

RC/Track

GM Raceway, 1651 W. Franklin St., Elkhart, IN 46516; Pete Russell, (219) 293-1827

RC/Track

Hardesty R/C Raceway, 11 East Plymouth St., Hamlet, IN 46532; Max Hardesty, (219) 867-8600 or (219) 772-6566

RC/Track

Hobby Barn Raceway, 1950 Springhill, Terre Haute, IN 47802-9694; (812) 299-5773

RC/Track

Hobbytown U.S.A., 5385 E. 82nd St., Indianapolis, IN 46250; Bill Scott, (317) 845-4106

RC/Track

Nitro R/C Speedway, 4310 West 400 South, Danville, IN 46122; John Webber, (317) 539-4413; email: nitrocr1@aol.com

RC/Track

P&T Hobbies and Raceway, RR 2 (Hwy. 60), Mitchell, IN 47446; Paul Weber or Tom Logsdon, (812) 849-6666; email: pnthobby@big-foot.com

RC/Track

Race Street Hobbies, 1126 1/2 Race St., New Castle, IN 47362; Jim Burke, (765) 521-4888

RC/Track

RC Barn, 310 N 125 W, Monroe, IN 46772; Mark Lengerich, (219) 692-6600

RC/Track

R/C World of Indiana, 2246 West U.S. Hwy. 36, Lynn, IN 47355; Joe Kolp, (765) 874-2464; e-mail: rcworld@glob-alsite.net; web: www.RCWORLD.com

RC/Track

R/C Mania, 8 Wood Ct., Hebron, IN 46341; Ron Trobaugh, (219) 996-6288 (shop); (219) 762-5365

RC/Track

The Rink, 7900 Whitcomb, Merrillville, IN 46410; Don Reiner, (219) 769-8113

RC/Track

Showtime Lot Racing, 606 Lower Huntington Rd., Fort Wayne, IN 46815; Mike Romines, (219) 478-6099

RC/Track

Summit Area Radio Cars (SARC), 7000 Red Haw Dr., Fort Wayne, IN 46805; John Kissel, (219) 492-2271

RC/Track

IOWA

Delb's Speedway, 423 11th Ave. So., Clinton, IA 52732; Rusti's Miniatures and Hobbies, (319) 243-2697

RC/Track

Hobby Haven, 7672 Hickman Rd., Des Moines, IA 50322; Rick Marble, (515) 276-8785

RC/Track

IROAR—Hawkey Downs Raceway, Hawkey Downs, 6th St. S.W., Cedar Rapids, IA 52404; Dave Kleinschrodt, (319) 556-8524

RC/Track

Manly R/C Club, Box 23 (Hwy. 65), Manly, IA 50456; Bruce Hill, (515) 454-2025

RC/Track

Mr. Car Raceway, P.O. Box 1112, Central Iowa Fairgrounds, Marshalltown, IA 50158; Jim Gossett, (515) 483-2234

RC/Track

Outback Speedway, 108 West Iowa, Greenfield, IA 50849; Helens Enterprises, (515) 747-3064, trackside (515) 343-7004

RC/Track

Radio Control Raceway Park, 2100 First Ave. N., Fort Dodge, IA 50501; Bernie Halverson, (515) 576-3780

RC/Track

Riverside Raceway, Veteran's Park, Algona, IA 50511; Mike Beisch, (515) 295-9352

RC/Track

Wild Bill's Raceway, 901 W. Jones, Knoxville, IA 50138; William Anderson Jr., (515) 842-5973

RC/Track

KANSAS

Ebersole Hobby and Raceway, 11417 W. Hwy. 54, Wichita, KS 67209; Sherri McWilliams, (785) 722-8888

RC/Track

Hobbytown USA, 2016 W. 23rd, Lawrence, KS 66046; Kevin Decembarus, (785) 865-0883

RC/Track

Mike's R/C Hobbies, 121 SE 29th St., Unit #3, Topeka, KS 66605; Mike Barnard, (913) 266-5767

RC/Track

Northboro Speedway, 168 Main St., Rte. 20, Northboro, MA 01532; Bob Trimble, (508) 393-8087



MICHIGAN

D.R. R/C, 22789 Northline Rd., Taylor, MI 48180; Jim, (734) 671-9081



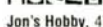
Freedom Hill R/C Raceway, 35372 Wellston, Sterling Heights, MI 48312; Jim McKenna, (810) 268-3996



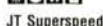
Great Lakes R/C Racers Club, 632 Plymouth Ave. NE, Grand Rapids, MI 49505; (616) 948-9798 or (616) 948-9814; email: Gr8LksRacers@aol.com, www.members@aol.com/grtlscrcw/index.html



Hobby Hub, 5859 M99, Diamondale, MI 48821; Verne Goebble, (517) 337-9278 or (517) 351-5843



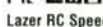
Jon's Hobby, 4739 E. Pickard, Mt. Pleasant, MI 48858; Jon Beutler, (517) 773-5412



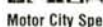
JT Superspeedway, W. Golden Ave., Battle Creek, MI 49015; Jerry or Sam, (616) 965-0116



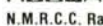
Larry's Performance R/Cs, 43665 Utica Rd., Sterling Heights, MI 48314; Larry, (810) 997-4840



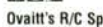
Lazer RC Speedway, 2858 N. Wilmoth Hwy., Adrian, MI 49221; Russ Johnson, (517) 263-2806



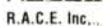
Motor City Speedway, 1602523, mile Rd., Macomb Township, MI 48042; Gary Cornwell, (810) 677-2470



N.M.R.C.C. Raceway, Hobby Toy, Main St., Gaylord, MI 49735; Ed Schneider, (517) 732-3963



Ovaith's R/C Speedshop, 3920 N. U.S. 31 S., Traverse City, MI 49684; Jim Ovaith, (616) 947-6670



R.A.C.E. Inc., 3227 Matthews, Jackson, MI 49203; Sam Sprang, (517) 787-9161



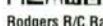
Raw Roots Race Tracks, 14623 East Crosswell, 1/4 mile north on 152nd (off U.S. 31), West Olive, MI 49460; Roy Bennink, (616) 399-9338



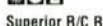
R&L Hobbies & Racing, 9782 Portage Rd., Portage, MI 49002; Rex Simpson, (616) 323-3686; fax (616) 329-1744; email: rlinfo@rlhobbies.com; www.rlhobbies.com



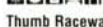
Robb's Hobbys, 1106 Columbus, Bay City, MI 48708; Dan, (517) 893-2712



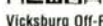
Rodgers R/C Raceway, 7463 Ridge Rd., Britton, MI 49229; George Rodgers, (517) 451-8301



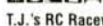
Superior R/C Raceway, 160 S. County Road 553, Lot 173, Gwynn, MI 49841; Frank Felster, (906) 346-7225



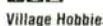
Thumb Raceway, 3441 Main St., Marlette, MI 48453; Jim Wilson, (517) 635-7848



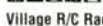
Vicksburg Off-Road R/C Raceway, 50201 Silver St., Vicksburg, MI 49097; Tim, (616) 323-7963



T.J.'s RC Raceway, Rt. 2, Box 22C, Luther, MI 49656; Tod Smart, (616) 797-8035



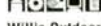
Village Hobbies-n-Crafts, 195 N. Elm, Hesperia, MI 49421; Alan or Fran, (616) 854-1374



Village R/C Raceway, Prairie Ronde St., Decatur, MI 49045; Chuck Nolke, (616) 423-7878



Washtenaw R/C Raceway, Ypsilanti, MI 48198; Jim Rousseau, (734) 395-5048



Willis Outdoor R/C Racetrack, 13922 Oakville-Waltz Rd., Willis, MI 48191; Mike Higgins, (734) 587-2012



MINNESOTA

Bemidji R/C, 1015 Miles Ave. S.E., Bemidji, MN 56601; Russ or Ryan, (218) 751-1629



Car Town USA, 2822 Piedmont Ave., Duluth, MN 55811; Roger Deloach, (218) 727-6248



Central RC, 1620 Central Ave., Minneapolis, MN 55330; Doug Ringold, (612) 781-1640



Country R/C Raceway Park, 24214 325th St., Belview, MN 56214-8115; Charles L. Steffl, (507) 641-8115



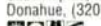
Duey's Hobbies & R/C Raceway, 6600 Cahill Ave., Inver Grove Heights, MN 55076; Duey Carlson, (612) 450-1721



Grand Rapids R/C Speedway, 2209 Hwy. 2 East, Grand Rapids, MN 55744; Aaron Voges, (218) 326-6751



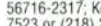
Granite City R/C Speedway, 3555 Shadowwood Dr. N.E., East Hwy. 23, Sauk Rapids, MN 56379; Brett Donahue, (320) 251-6980



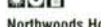
J's Radio Control Race Park, 22994 290th Ave., Starbuck, MN 56381; Jay Campbell, (320) 239-4827



Kevin's Private Off-Road Raceway, 702 So. Washington Ave., Crookston, MN 56716-2317; Kevin Altepeter, (218) 281-7523 or (218) 281-7491; email: kevinles@rrv.net; (note: registration required for permission of use)



Northwoods Hobby Raceway, 2638 Hwy. 25 North, Brainerd, MN 56401; Tom Grogg, (218) 829-9257



Ray's Raceway Park, 105 3rd Ave. NE, Glenwood, MN 56334; Dan Winter, (320) 634-5246



R/C Racing World, 235 Main Ave. North, Harmony, MN 55939; Mark McKay, (507) 886-5931 or (507) 886-2224



Red Barn RC Raceway, Rt. 4, Box 333, Mankato, MN 56001; Rusty Weiss, (507) 345-8972



Southside Speedway, 2241 Marion Rd. SE, Rochester, MN 55904; Kevin Guy, (507) 281-3233



Sport Zone RC Race Park, 32339 Harris Town Rd., Grand Rapids, MN 55744; Greg, (218) 326-8956



Time R/C Raceway, 20 West Lake St., Chisholm, MN 55719; RV, (218) 254-4321



MISSISSIPPI

Joe McFadden Hobbies, 5531 Fox Meadow Dr., Meridian, MS 39307; Joe McFadden, (601) 483-7000



Small Cars Unlimited, 820 Cooper Rd., Jackson, MS 39212; (601) 372-FAST; www.smallcarsunlimited.com



MISSOURI

All Seasons Hobby, 29 O'Fallon Square, O'Fallon, MO 63366; Bob Daniels, (314) 281-8767



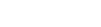
B&L Hobbies & Raceway, 2800 Anchor Dr., Park Hills, MO 63061; Bob Marler, (573) 431-9444



Bill's Hobby Shop, 1000 N. Nellis Blvd., Las Vegas, NV 89110; Bill Schultz, (702) 531-3282; website: www.billshobbyshop.com



Fire Mountain Raceway, 8647 Commercial Blvd., Pevely, MO 63070; Dan Gordon, (314) 475-6449



GreenTree R/C Racepark, St. Louis Dirt Burners R/C Club, Marshall Rd., Kirkwood, MO; (314) 831-2194



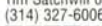
Hobbies 'N Stuff Raceway, 204 Mail Pkwy., Wentzville, MO 63385; Tim Satchell or Crandall Olds, (314) 327-6006



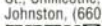
North Missouri Raceway, 223 Graves St., Chillicothe, MO 64601; Billy Johnston, (660) 646-1120



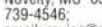
Novelty R/C Raceway, Rt. 1, Box 132A, Novelty, MO 63460; Rex or Jena, (660) 739-4546; email: rexjen@marktwain.net



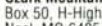
Ozark Mountain Speedway, Rt. #2, Box 50, H-Highway and County Rd. 31, Noel, MO 64854; Clayton Younker, (417) 475-6222



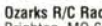
Ozarks R/C Raceway, Hwy 13N, Brighton, MO 65781; Gene Rhodes or Ron Hawkins, (417) 742-4376 or (417) 742-7223



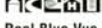
Real Blue Vue Speedway, 12019 E. 47th St., Kansas City, MO 64133; Mark Randol, (816) 358-0238



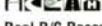
Real R/C Raceway, 24204 State Rt. 58, Pleasant Hill, MO 64080; Steve Hale, (816) 540-5584



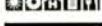
Stormer Raceway & Slot Motorplex, P.O. Box 126, Hwy. 2 East, Glasgow, MT 59230; (406) 228-4569



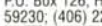
Checkerboard Raceways, P.O. Box 240, Elwood, NJ 08217; Ray Murray, (609) 629-4809



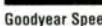
Family Hobbies Raceway, 3576 N.W. Blvd. & Weymouth Rd., Vineland, NJ 08360; Linda Vogel, (609) 696-5790



Jackson R/C Racing, P.O. Box 565, Christopher Columbus Blvd., Jackson, NJ 08527; Al Sodano, (732) 364-6422, or Ed, (732) 928-8963



Jefferson Speedway, 5494 Berkshire Valley Rd., Oak Ridge, NJ 07438; (201) 697-7525



Jerry's Hobby Center & Raceway, 336 Rt. 22W, Greenbrook, NJ 08812; Jerry or Gary, (908) 752-6030



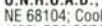
LBRA Track, 392 Warburton Pl., Long Branch, NJ 07740; (908) 222-5122



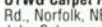
Millville R/C Oval, 114 N. High St., Millville, NJ 08332; William Denstoz, (609) 327-4640



On Trax Hobbies, 3101 Rte. 70, Browns Mills, NJ 08015; Joseph DiGirolamo, (609) 735-0422



South Jersey Cost Controlled Racing, 25 Jackson Ln., Sicklerville, NJ 08081; Ray Murray, (609) 629-4809



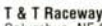
The Race Place, 1151 Hwy. 33, Farmingdale, NJ 07731; John Fary, (908) 938-5215



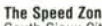
Charlie's Hobby Shop, 225 E. Idaho, Ste. 11, Las Cruces, NM 88005; Kim, (505) 541-1097



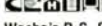
Las Cruces R/C Racers Association, Meerscheid Recreation Center, Walnut and Hadley by BMX, Las Cruces, NM 88001; D.J. Clark, (505) 546-4269; email: jade@zianet.com; www.zianet.com/jade/lcrrca.htm;



Las Cruces R/C Racers Association, Meerscheid Recreation Center, Walnut and Hadley by BMX, Las Cruces, NM 88001; D.J. Clark, (505) 546-4269; email: jade@zianet.com; www.zianet.com/jade/lcrrca.htm;



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NEW YORK

B&D Rally, 92 Fairview Ave., Bayport, NY 11705; Daniel Spotteck, (516) 472-9208



BarnStormers Speedway, 205 Gray Court Rd., Chester, NY 10918; Lou, (914) 469-6468; trackside (914) 469-8206



Brennan's R/C Hobbies, 6368 State Rt. 5, Vernon, NY; Bill or Tom Brennan (315) 829-4930



Brownie's Pro & Sport Hobbies, 124 Bennett St., Staten Island, NY 10302-1426; John Brown, (718) 727-2194



Bruckner Racing, 2908 Bruckner Blvd., Bronx, NY 10465; Thomas Baffers Sr., (800) 288-8185



BSK Hobbies & Raceway, 120 Main St., Horel, NY 14843; Bruce Harris, (607) 324-4011, (800) 603-0197



C&D Raceway, 12542 NYS Rte. 12E, Chaumont, NY 13622; Chris or Don Bourquin, (315) 649-5403



Capital District R/C Racers, 27 Verus Dr., Albany, NY 12211; Peter Willis, (518) 482-7128



Chipmunk Hill R/C Speedway, 217 Pine St., Theresa, NY 13691; Ted or Pete House, (315) 648-5065



Competition Hobby Speedway, 1006 Loudon Rd. Rte. 9, Latham, NY 12047; Howie or John, (518) 786-3622



East Coast Hobbies Race Club, Floyd Bennett Field, Brooklyn, NY 11204, for mail.



2515-65th St., Brooklyn, NY 11204; Brian Cardella, (718) 627-3814



Foothills R/C Speedway, 3200 Chestnut St., Oneonta, NY 13820; Dave Osterhook, (607) 432-5098



Frogtown Hobbies, Rt. 37, Mini Pines Village, Hogsburg, NY; 13655; Dennis, (518) 358-3686



Hacr's Hobbies & Raceways, 120 Cayuga St., Canal View Mall, Fulton, NY 13069; Jack LaTulip, (315) 598-7063



Jerry's Raceway, 111 S. Applegate Rd., Ithaca, NY 14850; Jerry and Lori Achilles, (607) 277-0940



LI 1/4-Scale Racers, 63 Horton Dr., Huntington Station, NY 11746; (516) 351-5384



Long Island Raceway, 168 Broad Hollow, Farmingdale, NY 11735; James, (516) 845-7223; www.raceway.com



MTW Raceway, 11930 Johnny Cake Hill Rd., Cato, NY 13033; Wade, (888) 39-HOBBY



Performance Plus Radio Control Speedway/The Hobby House, 1141 1/2 Jones &

R/C Competition Corner, 2202 Brewerton Rd., Matlydale, NY 13211; Lori and Cos Ciriello, (315) 455-8718

R/C Competition Corner

Silver State R/C Club, Centennial Park, Carson City, NV 89501; (702) 853-3953

Silver State R/C Club

Southern Tier Raceway, 88 Paige St., Owego, NY 13827; Anita Harding, (607) 687-5395

Southern Tier Raceway

South Shore Hobby & Raceway, 464 East Main St., Patchogue, NY 11772; Benny or Bonnie, (516) 758-5567

South Shore Hobby & Raceway

Tri County Remote Control Car Club, 33 West Decker St., Johnstown, NY 12095; Tom Levell, (518) 725-1279

Tri County Remote Control Car Club

TARMAC—Ultimate R/C Raceways, 2830 Mountain View Rd., Poughkeepsie, NY 12603; Todd, (914) 342-5409; Greg, (914) 528-5084; trackside, (914) 454-8276; www.tarmacraceway.com

TARMAC—Ultimate R/C Raceways

Walt's Hobby, 2 Dwight Park Dr., Syracuse, NY 13209; (315) 453-2291

Walt's Hobby

Westfield R.C. Speedway, 27 Clark St., Westfield, NY 14787; John or Jared Lindstrom, (716) 326-2339; 716-326-2309

Westfield R.C. Speedway

Whitestone, 30-56 Whitestone Expy. (Dept. of Motor Vehicles), Flushing, NY 11374; Rudolf Ardilla, (718) 966-6155

Whitestone

Willis Hobbies R/C Speedway, 300 Willis Ave., Mineola, NY 11501; Ken Ford, (516) 746-3944

Willis Hobbies R/C Speedway

ZOAR Road Speedway, 15318 Armes Ct., Gowanda, NY 14070; David & Gordon Ackler, (716) 532-9463

ZOAR Road Speedway

NORTH CAROLINA

A&J R/C Models, 2051 Anthony Rd., Burlington, NC 27215; Jerry Loye or Andrea Thompson, (336) 227-4556; fax (910) 227-1001

A&J R/C Models

The Antique Barn, 2810 Forest Hills Rd., Wilson, NC 27893; (252) 237-6778

The Antique Barn

Atlantic Coast R.C., 8-A Lockhead Ct., Greensboro, NC 27409; Charlie Higgins or Harry Johnson, (336) 664-1277

Atlantic Coast R.C.

Badin Shore Raceway, 1730 Jackson Lake Rd., High Point, NC 27263; Jimmy or Tim Martin, fax (910) 431-6407

Badin Shore Raceway

C/H Hobby Speedway, 8358 U.S. Hwy. 220 Bus. N., Randleman, NC 27317; Steve & Mary Cox, (910) 495-3482

C/H Hobby Speedway

C/W R/C Speedway, 1297 Charlotte Hwy., Asheville, NC 28730; Billy or Tim, (828) 684-0061

C/W R/C Speedway

Carolina Dragway, 1555 Turkey Hwy., Clinton, NC 28328; (910) 592-9489

Carolina Dragway

Chatham R/C Raceway, 326 Reno Sharpe Store Rd., Bear Creek, NC 27207; Dwight Fields, (919) 898-2991

Chatham R/C Raceway

Green Flag RC Raceway, 107 Harley Rd., Wilmington, NC 28401; Mike McLemore, (910) 452-1620

Green Flag RC Raceway

R & D Speedway, 418 Main St., Tarboro, NC 27886; John Dupree, (919) 823-2294

R & D Speedway

Ride & Slide R/C Raceway, 5319 Yadin Rd., Fayetteville, NC 28303; Bill Culbertson, (910) 867-4202

Ride & Slide R/C Raceway

Radio Jockey's Parkway, "R.J.'s," Rt. 9, Box 651, Fay, NC 28301; www.wave-net.net/mshutt; Tony Starling, (910) 486-4820

Radio Jockey's Parkway

R.C.R. Speedway, 1415 Henderson Grove Church Rd., Salisbury, NC 28147; Ronnie Linker, (704) 637-2565

R.C.R. Speedway

Rosewood R/C Speedway, 651 Community Dr., Goldsboro, NC 27530; Glenn Elam, (919) 731-4734

Rosewood R/C Speedway

Southern RC Motorsports Club, Hwy. 17S., P.O. Box 1651, Shallotte, NC 28459; Mark Whitt, (910) 754-4902 or Eddie Ferster, (910) 754-8528

Southern RC Motorsports Club

Youngsville R/C Club, 6516 NC 96 Hwy. W., Youngsville, NC 27596; James Ray, (919) 556-0446

Youngsville R/C Club

NORTH DAKOTA

Northern Mini Racers, 1000 36th St. S.E., Minot, ND 58702; Mike, (701) 838-5818

Northern Mini Racers

River City R/C, 2714 Main Ave., Fargo, ND 58103; Chris, (701) 235-1272

River City R/C

OHIO

AK Hobby and Raceway, 3826 North Bend, Cincinnati, OH 45211; Tim Tolle, (513) 661-7080

AK Hobby and Raceway

American Ohio Sprint Car, 1708 Empire Rd., Wickliffe, OH 44092; Gary Waldehelm, (440) 944-9966

American Ohio Sprint Car

Classic Hobbies, 1994 E. Waterloo Rd., Akron, OH 44312; Walt Ellis, (330) 733-6400

Classic Hobbies

CORCAR/Sams Club, 128 Amity Rd., Galloway, OH 43119-8732; Bill Stevenson, (614) 870-7159

CORCAR/Sams Club

Columbus R/C Racing Club (C.R.C.R.C.), Franklin County Fairgrounds, Hilliard, OH 43026; Jeff Crowell, (614) 236-1783

Columbus R/C Racing Club

D&J R/C Raceway, 801 W. Market St., Orrville, OH 44667; Don Yoder or Mark Nussbaum, (330) 682-4266

D&J R/C Raceway

Full Throttle Raceway, 600 Mt. Moriah Dr., Cincinnati, OH 45255; Bill Dolch, (513) 943-9009 or via pager at (513) 730-1073

Full Throttle Raceway

Glass City Radio Control, 2620 Ivy Pl., Toledo, OH 43613; Frank Johnson, (419) 472-1286

Glass City Radio Control

Greentown R/C Raceway, 3353 Perrydale, Greentown, OH 44630; Chuck Lambert, (330) 364-6585

Greentown R/C Raceway

Hobby Shop Raceway, 2096 Miamisburg Centerville Rd., Centerville, OH 45459; The Hobby Shop, (937) 436-6161

Hobby Shop Raceway

Hobby World, 3499 SR 59, Ravenna, OH 44266; Tom Fry, fax (330) 296-0894

Hobby World

J & L R/C Raceway, 5342 W. St. Rt. 718, Troy, OH 45373; Mike Wegman, (513) 521-3408; email: wegs@one.net

J & L R/C Raceway

Lafferty R/C Raceway, Box 153, 70228 Hurrah St., Lafferty, OH 43951; Chris Christman, (740) 968-4818

Lafferty R/C Raceway

Mid American Raceway, 13150 Airport Hwy., Swanton, OH 43558; Bill or Chuck, (419) 475-9459

Mid American Raceway

Nothing But Air R.C. Track, 34632 True Rd., Logan, OH 43138; Gary Lloyd, (740) 385-0288

Nothing But Air R.C. Track

Shiray's Hobby & RC Raceway, 19930 State Route 117, Waynesfield, OH 45896; Ray Zimmerman, (419) 568-8055

Shiray's Hobby & RC Raceway

TARCAR, 7216 Nebraska Ave., Toledo, OH 43617; Bill Bridges, (419) 826-3859

TARCAR

Van Wert R/C Raceway, 144 E. Main St. (above Hoverman Music), Van Wert, OH 45891; Mark Davis, (419) 232-2112

Van Wert R/C Raceway

Y-City Hobby & Speedway, 120 S. 6th St., Zanesville, OH 43701; Kevin McKenna, (674) 455-3025

Y-City Hobby & Speedway

OKLAHOMA

Adams Creek R/C Speedway, 5207 S. 194th E. Ave., Broken Arrow, OK 74014; John Beighle, (918) 355-1416

Adams Creek R/C Speedway

Competition R/C, 100 S.E. 89th, Oklahoma City, OK 73149; James or Louise Brown, (405) 634-0809

Competition R/C

Enid R/C Speedway, 1821 S. Van Buren (Hwy 81), Enid, OK 73701; Bob, (580) 233-3344 or (580) 234-7666

Enid R/C Speedway

R/C Speedway of Lawton, 202 Southeast B Ave., Lawton, OK 73501; Rick, (580) 355-8040

R/C Speedway of Lawton

Wild Country Speedway, 127 S. Main, Porter, OK 74454; Charles McCollough, (918) 685-0372 or (918) 687-1686

Wild Country Speedway

OREGON

Competition Racing Association, 17941 N.E. Gleason, Portland, OR 97230; Mark Taylor, (503) 761-1334

Competition Racing Association

D.I.R.T. R.O.A.D. Club, 65540 73rd St., Bend, OR 97701; Daleyne and Edward Gietz, (541) 388-2932 or (800) 475-6040; ext. 777 (at 2nd dial tone, enter ext.); email: blue@coinet.com

D.I.R.T. R.O.A.D. Club

R/C Plus Hobbies Raceway, 1857 25th St. S.E., Salem, OR 97302; Ron Smith, (503) 364-9188

R/C Plus Hobbies Raceway

R/C Speed Center, 2810 N. Pacific Hwy., Medford, OR 97501; Gene and Betty Jean Skelton, (541) 779-8298

R/C Speed Center

Rose City Scale Racing, Highway 224, K-Mart parking lot, Milwaukie, OR 97222; Rick Strauss, (503) 631-2929

Rose City Scale Racing

Yamhill County R/C Car Club, 722 Morgan Ln., McMinnville, OR 97128; Larry Rucker, (503) 472-7234

Yamhill County R/C Car Club

PENNSYLVANIA

B&B Raceway, 1301 Pine St., Berwick, PA 18603; Ray Berry Jr., (717) 759-3469

B&B Raceway

Courtview Raceway, 20 S. Main Street (lower level), Washington, PA 15301; Aaron Stimmell Jr., (724) 225-4302

Courtview Raceway

DC Ultra Trax, 13 York Rd., Wycombe, PA 18974; David Cowan, (215) 672-5200

DC Ultra Trax

D&D Hobby Shop, 305 3rd St., Rouseville, PA 16344; (814) 676-4475

D&D Hobby Shop

Dreamboat Hobbies, 2810 Pennsylvania Ave. W., Warren, PA 16365; Louie Dussia, (814) 723-8052

Dreamboat Hobbies

Koontz's Home & Hobby Center, 1205 Hoover St., Pittsburgh, PA 15204; (412) 331-3866

Koontz's Home & Hobby Center

Kranzel's R/C Raceway & Hobbies, 415-B Bosler Ave., Lemoyne, PA 17043; David or Stuart Kranzel, (717) 737-7223

Kranzel's R/C Raceway & Hobbies

Little Plum R/C Hobbies, RR 1, Box 330, Lock Haven, PA 17745; Larry Duck, (570) 769-1984

Little Plum R/C Hobbies

Lugnut Raceway, 1713 Bethlehem Pike, Hatfield, PA 19440; Bill Henning or Kathy Anderson, (215) 822-5831

Lugnut Raceway

Marshall's R/C Raceway, RR 4, Box 640, Honesdale, PA 18431; Bill or Dot Marshall, (570) 729-7458

Marshall's R/C Raceway

McCullough's Offroad, 108 Callen Rd., Sarver, PA 16055; Doug McCullough, (724) 352-0116; email: DMcCull323@aol.com

McCullough's Offroad

The Mushroom Bowl, 960 W. Cypress St., Kennett Square, PA 19348; Bruce or Drew, (610) 444-1850

The Mushroom Bowl

Pinion Twisters, 3M Plant, Green Ln. and Mitchell, Bristol, PA 19007; Mark, (215) 632-2344 or Tony, (215) 742-3560

Pinion Twisters

Pit Stop Hobbies, 262 W. Main St., Mount Joy, PA 17552; James Stoudt Jr., (717) 653-6222

Pit Stop Hobbies

Prop & Wheels Raceway, 139 W. Broad St., Tamaqua, PA 18252; Gil Walters, Prop & Wheels Hobbies, (570) 668-2288

Prop & Wheels Raceway

Racers Edge R/C Racing, RR#1, Box 271, Smethport, PA 16749; Rick Morgan or Johna Simar, (814) 887-2269; email: morg@penn.com; web.users.penn.com/~morg/track.html

Racers Edge R/C Racing

The Raceway at River Junction, 1216 4th St. (behind cemetery), Beaver, PA 15009; (724) 728-5571

The Raceway at River Junction

RC Ave. Raceway, 324 McKinley Ave., Latrobe, PA 15650; Scott Smith, (412) 537-5501

RC Ave. Raceway

RC Outfitters RCO Raceway, 519 Broadway, Hanover, PA 17331; Chris Shaffer, (717) 633-9490; http://rco.webjump.com

RC Outfitters RCO Raceway

R/C Pro III, 910 Chestnut St., Coal Twp. (Shamokin), Shamokin, PA 17866; John Swisher, (570) 648-7763

R/C Pro III

Riverside Raceway, Penna. Ave. W. & Hickory, Warren, PA 16365; Jeff, (814) 723-4211

Riverside Raceway

S.A. Hi Banks, Hahn's Dairy Rd., Palmerton, PA 18071; Scott Andrews, (610) 826-4583

S.A. Hi Banks

Somerset Hobby Shop Outlet, 4309 Glades Pike, Somerset, PA 15501; Bob Rhodes, (814) 445-6214

Somerset Hobby Shop Outlet

Staub Bros. R/C Speedway, 31 Locust St., Gettysburg, PA 17325; Todd or Scott Staub, (717) 334-5445

Staub Bros. R/C Speedway

TnT Raceway, Randolph Rd., Great Bend, PA 18821; Frenchie, (607) 775-1750 or Ed Kraft, (570) 967-2604

TnT Raceway

Trains & Lanes Raceway, 3825 Northwood Ave., Easton, PA 18045; Jeff Setzer, (610) 253-8850, (800) 447-4891

Trains & Lanes Raceway

Willow Mill Speedway, 37 N. Season's Dr., Dillsburg, PA 17019; George Verbowitz, (717) 432-4445

Willow Mill Speedway

World A.T.L.A.S./P.A.R.C.E. R/C Raceway Hobby Shop & R/C Club, Chester Exchange Mall 10th & Morten St., Chester, PA 19013; Darryl, Lee or Marc, (610) 874-2540

World A.T.L.A.S./P.A.R.C.E. R/C Raceway Hobby Shop & R/C Club

PUERTO RICO

Area 51 On Road Track, Carr 931 Km 1.5, Bonavaro, Gurabo, PR 00745; (787) 739-1572

Area 51 On Road Track

Cidra R/C Track, Carr 7787 Km 1.6, Bo Beatriz Adentro, Cidra, PR 00739; Humberto (Tito) Lizardi, (787) 739

TENNESSEE

D&M's Downtown Raceway, 2703 U.S. Hwy. 411S, Maryville, TN 37303; (423) 681-8919

Futrell's R/C Hobby Shop, 1715

Jackson Ave., Seymour, TN 37865; Dan Futrell, (423) 908-9526

Hobby Town USA, 2000 Mallory Ln.,

Franklin, TN 37067; Bobby Mills, (615) 771-7441

Interstate Raceway, 5237 Highway

126, Blountville, TN 37617; Dale or Mark, (423) 323-1513; mkstarnz@intermediat.net

MID-South Racing Association, 9155

Hwy. 72 (Poplar Ave.), Germantown, TN 38138-7903; (901) 757-8774

MSA Racing, 120 Village Way,

Crossville, TN 38555; D.R. Findley, (931) 456-0027

R & R Racing Portable Track, RR3,

Box 34, Linden, TN 37096; Ross or Ron, (931) 589-5433

TnT Raceway, 643 Loop Hollow Rd.,

New Tazewell, TN 37825; Cliff Swett, (423) 869-8942

W.O.W. Raceway, 59 Luray Rd.,

Beech Bluff, TN 38313; Brad Jones, (901) 423-4784; email: wowmng1@abac.com; http://go.to/wowracing

TEXAS

215 Speedway, 1814 County Rd. 215, Abilene, TX 79602; Clyde Gardner, (915) 673-2351

B&B R/C Hobbies, 700 East 4th,

Big Spring, TX 79720; Walter Bumbulis, (915) 263-1790

Big Mike's R/C Raceway, 1405 W.

Cotton St. (behind the Locker Room), Longview, TX 75604; (903) 297-7814

Comanche Trail RC Park, City Park,

Big Spring, TX 79720; Allen Nichols, (915) 263-4241

Discount Hobbies, 1722A West

Anderson Loop, Austin, TX 78757; Tony Bermudez, (512) 458-2324

Drycreek Raceway, 5903 Co. Rd. 2297,

Quinlan, TX 75474; Micky Alphin, (903) 883-4060

Eastex Raceway, 45000 Hwy. 59 N.,

New Caney, TX 77357; Brent Mahaffy, (713) 399-9777

Finish Line Raceway, 2775 N. Hwy.

360, Ste. 637, Grand Prairie, TX 75050; Steve Manning, (817) 652-3340

Hal's Hobby Raceway, 1440 Bessemer,

El Paso, TX 79936; (915) 591-2213

Hobbytown USA, 999 E. Basse Rd.,

San Antonio, TX 78209; Joe Sena or Clark Baisdon, (210) 829-8697; fax (210) 829-8707

Hot Rod's Raceway, 4218 Boston Ave.,

Lubbock, TX 79413; Rodney, (806) 797-9964

Issac's Race Track, 18177 Gulf Frwy.,

Houston, TX 77598; Issac Ben-Ezra, (281) 488-8697

MBRC Off-Road Raceway, 204 D&E

Valley Ln., Kennedale, TX 76060; Mike Battaile, (817) 563-1900

Mammoth R/C Racing, 4221 Spencer, Pasadena, TX 77504; John, (713) 346-2522

Mike's Hobby Shop Superstore and

Raceway, 1605 Crescent Cir., Carrollton, TX 75006; (972) 242-4930; www.mikeshobbyshop.com

Performance Raceway, 11066 Witte

Rd., Houston, TX 77055; Jorge or Terry, (713) 464-4458

Rev It Up Raceway Practice Track,

3076 Keller Rd., Smithville, TX 78957; Rev. Alton T. Edwards, (512) 237-5903

Rick's R/C Raceway, 238 Scenic Loop,

Boerne, TX 78000; Rick, (210) 981-2245 or Rich, (210) 590-1805

Star/Car Raceway, 5802 Patton St.,

Corpus Christi, TX 78415; Glen Stead, (512) 949-8525; Race Hotline, (512) 881-6105

T&T R/C Cars, 3420 Ave. K., Suite 154,

Plano, TX 75074; Joe Sullivan, (972) 633-2470

Texas Speedway, 67073 Chimney

Rock, Bellaire, TX 77401; (713) 661-7137; www.i-hobby.com

T.O. Offroad Raceway, 6236 Quail, El

Paso, TX 79924; Eren Saenz, (915) 821-7522

Warehouse Radio Controlled

Raceway, 5119 Plains Blvd., Amarillo, TX 79101; Craig or Darren Waddell, (806) 356-9080

W.E.S. Hobby Race, 980 S. Fourth St.,

Beaumont, TX 77701; Edmond Richards, (409) 839-4929

UTAH

Intermountain R/C Raceway, 8481 W. 2700 S., Magna, UT 84044; David Mott, (801) 250-8303

Hobby Haven Raceway, 4135 West

575 North, Cedar City, UT 84720; (435) 865-1274

Payson R/C Raceway, 955 S. Main,

Payson, UT 84651; Gus Wood, (801) 224-3852 and Lasca Wood, (801) 222-8677

Vision Hobby, 352 N. State St., Orem,

UT 84057; Ken Rice, (801) 226-6226

WOR R/C Raceway, 3170 Brinker Ave.,

Ogden, UT 84401; Brian Worton, (801) 393-2530

VERMONT

Barre Town R/C Club, 14 S. Main St., Wall St. Complex, Barre, VT 05641; Russ or Pete, (802) 888-2860 or (802) 476-9458

Bradford R/C Racing, Main St.,

Bradford, VT 05033; Seth Bean, (802) 222-9674

Empire Hobbies Off-Road Raceway,

272 North Main St., Saint Albans, VT 05478; Scott or Jen, (877) 4-HOBBIE; email: mpirhobe@Togethr.net

Stoughton Pond Raceway, Stoughton

Pond Rd., Perkinsville, VT 05151; Rick Adams, (802) 263-9321

VIRGINIA

Brad's Hobbies, 1105 Greenville Ave., Staunton, VA 24401; Brad, (540) 885-3642

Brown Brothers Hobbies, 924 N. Main

Street, Dumfries, VA 22026; Joel or Bob Brown, (703) 221-5746

Cooper's R/C Race Center, 4000 Sago Rd. (969), Chatham, VA 24531; Norris Cooper, (804) 724-7342 or (804) 724-4182; website: http://coopersrc.virtuale.net

DRWC Raceway, Debbie's RC World,

2200 Commerce Pkwy., Virginia Beach, VA 23454; Les Modlin, (757) 340-6681

Gloucester Scale Hobbies, 2352

George Washington Memorial Hwy., Hayes Plaza, Hayes, VA 23072; Rob Thein, (804) 642-3484

Hampton RC Speedway, 1920 E.

Pembroke Ave., Hampton, VA 23663; Steve Long or Mickey Kern, (757) 723-1884; website: www.fortunecity.com/olympia/norman/26/

K & W Hobby and Sports, 5186 Nine

Mile Rd., Richmond, VA 23223; Ross Martin, (804) 737-3904

KC's Radio Control & Repair, Rt. 4,

Box 312, Trents Ferry Rd., Lynchburg, VA 24503; Curtis or Kim Wright, (804) 384-8596

Olde Towne Hobby Shoppe, 9105

Center St., Manassas, VA 22110; Arnie Levine, (703) 369-1197

Race World Hobbies, 6102 Lakeside

Ave., Richmond, VA 23228; Larry Boyd, (804) 553-8040

The Racer's Edge, 1230 West Main St.,

Danville, VA 24541; Al Harville, (804) 792-6011; email: webmaster@theracersedge.virtuale.net; http://theracersedge.virtuale.net

Roadmasters/Rick's Hobbies, 12201

Balls Ford Ave., Manassas, VA 22110; Rick, (703) 330-6833

Shamrock Raceway, 106 Cheviot Pl.,

Stephens City, VA 22655; Scott Janow, (540) 869-3551; note: track is located in Winchester, VA

Thunder Road R/C Racing, P.O. Box

1022, Troy, VA 22974-1022; James Palmer, (804) 589-8174

The Tiltyard, 6994 Tiltyard Dr.,

Dayton, VA 22821; (540) 828-3476; www.tiltyard.com; tiltyard@rica.net

Trainlano R/C Racing, 5661 Shoulders

Hill Rd., Suffolk, VA 23435; Frank Stevens, (757) 488-5454

WASHINGTON

A-Main Raceway, 14011 N.E. 3rd Ct., Vancouver, WA 98685; Monty Coleman, (360) 571-8404

Bear Creek Raceway, 6319 Maltby Rd.,

Woodinville, WA 98072; Nathan Brockway, (425) 398-0140

Burien Toyota R/C, 15025 1st Ave.

South, Seattle, WA 98148; Ray Meek, (800) 654-6456

Cedarvale Raceway, 1673 Cedarvale

Rd., Mount Vernon, WA 98273; Joe Madonia, (360) 659-0072; email: getchell@halcayon.com

Fantasy World Raceway, 7901 S.

Hosmer, Tacoma, WA 98408; Dave Kleinman, (253) 473-6223; www.fantasyworldhobbies.com

Four Seasons R/C Racing, 2941

Sleater Kinney Rd. N.E., Olympia, WA 98506; Gary and Sharon Brown, (360) 491-2430

Hank Perry Raceway, 1901 N. Sullivan

Rd., Spokane, WA 99023; Thom Mullins, (509) 928-2009

Race City, 125 E. Main St., Auburn, WA 98002; Craig Haslebach, (253) 939-2515; trackside (253) 939-2515

SARCAR Club, 700 Renton Village Pl.,

Renton, WA, Darylene Dennon, (425) 483-8210

Spokane Indoor Raceway, 6422 E. 2nd

Ave., Spokane, WA 99212; Dave Mapston, (509) 534-RACE

Tacoma R/C Raceway, 6305 6th Ave.,

Tacoma, WA 98406; Scott Brown, (253) 565-1935

Rain City RC Raceway, 3616 South

Rd., Suite A-3, Mukilteo, WA 98275; Peter, Andrew or Debbie, (425) 438-2454; ibausar@gte.net; www.raincityraceway.com

Ultimate R/C Raceway, 907 Cole St.

#3, Enumclaw, WA 98022; Dan Daugherty, (360) 802-2388

West Coast Hobby & Raceway, 2239

Stevens Dr., Richland, WA 99352; Darren Shank, (509) 375-4995

Zep's Hobbies & Raceway, 530

Interlake, Moses Lake, WA 98837; Steve Ralph, (509) 765-8191

WEST VIRGINIA

Burr-Fab Raceway, 90 Davis St., West Union, WV 26456; Mark Travis, (304) 873-2487

Fulton's R/C Raceway, 2646 Chapline

St., Wheeling, WV 26003; James Fulton, (304) 233-5355

Left Turn Hobbies, 100 Saco Ln. (by

Post Office), Glen White, WV 25849; Stretch, (304) 255-3930

Race Zone, Hopewell Rd., Rt. 8, Box

343A, Fairmont, WV 26554; Joe Clutter, (304) 368-1000

WISCONSIN

ABC R/C Inc. & Raceway, 244 W. Main St., Waukesha, WI 53186; Dick Mathiesen, (414) 542-1245; www.abchobby.com; email: help@abchobby.com

Best's Hobbies, 2700 West College

Ave., Appleton, WI 54914; Peggy, (920) 734-5244

Dirt Heaven Hobby and Raceway,

6028 County Rd. K, New Franken, WI 54229; sales@dirtheaven.com; www.dirtheaven.com

Aaron (920) 866-9096

Gary's Hobby Center, 3701 Durand

Ave., Racine, WI 53403; Bill Phalen, (414) 554-8884

Hobbytown USA - Revolution,

Memorial Mall, 3347 Kohler Memorial Dr., #D2, Sheboygan, WI 53081; Kenny, (920) 452-0801

Mid-West Tri-Clone, 3745 Shuster,

West Bend, WI 53095; Tom Holz, (414) 334-0429

Pro-Star Racing, 726 Pine St., Green

Bay, WI 54301; Chuck, (920) 494-1233 or Terry, (920) 469-5566

Revolution Raceway, Memorial Mall,

3347 Kohler Memorial Dr., #D2; Sheboygan, WI 53081; (920) 452-0801 or (800) 594-9420

R.J.S./R.C., 4920 Hwy 70W, Eagle

River, WI 54521; Randy Stys, (715) 479-2541

Templestowe Flat Track Racers,

Templestowe Reserve, corner of Porter St. and Williamsons Rd., Templestowe, Melbourne, Victoria 31066; Renato Benci, 61 (3) 9553 4625

WYOMING

Collectable Creations Off-Road Oval

Track, 1790 Dell Range Blvd., Cheyenne, WY 82009; Phil Severson, (307) 632-2156

Wind River R/C Racing Association,

113 S. 3rd E., Riverton, WY 82501; Bob Belding, (307) 857-2068

Xtreme Hobbies Raceway, 2724

Powder Basin, Gillette, WY 82718; Krieg Bails, (307) 682-6077

ARGENTINA

Circuit M.R. Models, Av. de Monroe 1402, (1428) Capital Federal, Camino del Buen Ayre y Pte. DeBenedetti, Buenos Aires, Maximiliano, 54-011-47801677

Club A. Velez Sarsfield, Av. J.B. Justo

9000, C.P. 1408, Buenos Aires; Jorge Herrero, 54-01-658-5851

AUSTRALIA

A.C.T. Model Car Racing Club, Off-road track—Wanniasa Raceway, Hyland Place, Wanniasa A.C.T.; indoor track—Epic Complex, Northbourne Ave., Canberra North A.C.T.; Gary Davey, 61-6-2871411

A.C.T. Remote Control Car Club, Jenke

Goyder St., Narrabundah, Australian Capital Territory; Rob Jorgensen, 61-2-6231-9925; email: sxs@dynamite.com.au

Aubry R/C Car Club, Aubry

Showgrounds, Aubry, NSW 2640; Ron Langman, 060-247-128

Canberra Off-Road Model Car Club,

Goyder St., Narrabundah, ACT 2604; Graham Brown, 61-6-241-3070

Carine R/C Model Car Club Inc.,

Penistone Reserve, Greenwood, Western Australia; David Werner, 61-418-922-966

Central Coast ORCC, EDSACC Sports

Complex, Bateau Bay, NSW 2261; Peter J. Knight, 61-43-693-698

Fast n' Fun, 250 Potreath Rd

Wee Waa's Offroad RC, KYEEMA,
Burren Junction, N.S.W. 2386; Shane,
61-02-6796-1339



Wodonga R/C Car Club, 11 Murphy St.,
Wodonga, VIC 3690;
Ron Langman, 61-60-247-128



AUSTRIA

RMC-Wien, Aspernstrasse 5, Vienna,
A-1220; Herbert Holze/Martin Hrzak,
+43-664-4730376

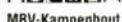


BELGIUM

ATR-Alka-Tele-Racing, 3570
Stationstraat 21, Aiken Limburg;
0032-11-25-49-03



Cartroublers Indoor Buggy Track,
Jan Moonsstraat 52-56, 2160
Wommelgem; Guy Ermes,
32-3-326-51-15; fax 32-3-326-51-01



MBV-Kampenhout, Teniersin 28,
Kampenhout B1910; Frank Mostrey,
phone/fax 0-16-65-75-18



MRCZ, Centrum, De Burg, Montie,
75-71-63



Model Racing Club Oudenaarde,
Scheldkant, 9700 Oudenaarde;
A. Chanterle, 32-55-31-36-48; fax
32-55-30-19-12



R.C.R., Peilstraat 43, Retie 2470;
A. Eelen, phone/fax 32-14-379685



BRASIL

Amoc Cassociacao de Modelismo B.
Camborio, Junto ao Par Que Ecologico
de Bal. Camborio, Bal. Camborio, S.C.
88-330-000; Leo Cesar, (047) 366-0001



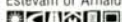
Brasilia R/C Motor Circuit,
Estacionamento do Estadio Mane
Guarinnha, Brasilia, DF 70000;
Alexandre (Alex), 55-061-273-7205



C.A.A.R. Curitiba Associacao de
Automodelismo Radiocontrolado,
Rua Theodoro Makioka,
2300 Santa Candida, Curitiba,
PR 82650-530;
Ronaldo Assumpcao, 55-41-354-2804



Electric Car Club R/C Santos,
Av. Bernardino de Campos, 227,
Santos, SP 11065-001;
Estevam or Arnaldo, 55-013-232-2536



Hamilton Neto Associacao RC, Rua
Uterere 259, Curitiba, Paran 80380-
400; Danico Pilhax, 55-41-338-8041;
hammer_usa@hotmail.com



Hobby Center, SOS 210 BLH
Apt. 204, Brasilia, DF 70.273;
061-242-0488



Hobby Planet Racing Club, Rod Dom
Pedro 1, KM 1315, Campinas, Sao
Paulo 13091901; Daniel, Helio,
Luciano, 019 258 2768



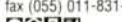
Jungle Drive, Rua Alberto Maranhao,
No. 219 Icha do Gov. Rio de Janeiro,
21940-490; Paulo Brito,
(021) 396-0851 or (021) 393-7449



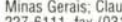
MP Raceway, Av. Nacoes Unidas, 6815
Lapa, Sao Paulo; Gerd Heitrotter, 55-
11-9819039; www.hpraceway.com.br



Off Roaders, Av. Guillaume Dummont
Villars, 317, Sao Paulo, CEP 05640;
Waldir Ielpo, (055) 011-260-5628;
fax (055) 011-831-4931



Way of R/C Off-Road Cerrado, Rua
Paraila 1323, 1st floor, Belo Horizonte,
Minas Gerais; Claudio T. Correia, (031)
227-6111, fax (031) 227-6869



CANADA

Action Weelz, 462 Turcotte, Vanier,
Quebec, G1M 1R6; Regent Tardif, (418)
527-5756

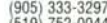


Advance R/C Raceway, 4181 Sheppard
Ave. E., Scarborough, Ontario M1S
1T3;

Albert Lau, (446) 321-8377



The All New R.C. World, 2633 Hwy.
#6, Mt. Hope, Hamilton, Ontario L0R
1W0; Dave, (905) 765-2301, Larry,
(905) 333-3297 or Brian,
(519) 752-0044



ATN, Auto Teleguidee Nicolet, 2000 Rue
Paul Hubert, Saint-Jean-Baptiste-de-
Nicolet, Quebec J3T 1E5; Louis Durand,
(819) 293-6097



Auto Sprint, 6065 Des Grands Prairies,
St. Leonard, Quebec H3G 2R6; David
Kalayjian, (514) 287-3503



Blew Bye You Raceway, 134 Dike Rd.,
Chilliwack, British Columbia V2P 5B1;
(604) 792-8978



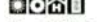
Circuit J.C., 1283 Chemin, St. Philippe,
St. Polycarpe, Quebec J0P 1X0;
Jean Castellon, (514) 265-3675



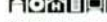
Circuit Pepsi, Centre de Location, 37
duRoi, Sorel, Quebec; (514) 746-8828



Circuit Plessis, 260 Rang 9 Ouest,
Plessisville, Quebec G6L-2Y2;
(819) 362-3743



Circuit R/C Pro, 1500 Chemin Sullivan,
Val d'Or, Quebec; J9P 1M1; R/C
Modeler Plus, (819) 874-3918



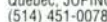
Circuit Teleguide St. Roch, 363-B St.
Charles, St. Roch De L'Achigan, Quebec
J0K 3H0; (514) 588-4254,
fax (514) 588-6554



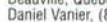
Circuit Teleguide Grand Prix II, 701,
Sainte-Rose, Ste. 200, Laprairie,
Quebec, J5R 1Z2; (450) 444-1286



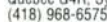
Club Auto Teleguides, 1750 Mlee
Interprovincie, C.P. 35, Pointe-Fortune,
Quebec, J0P1N0; Jacques St. Alevis,
(514) 451-0078



Club Avall, 244 Jules-Richard,
Deauville, Quebec J1N 3;
Daniel Vanier, (819) 864-6262



Club RC51, 44 Rue Holliday, Sept-Iles,
Quebec G4R; Sylvio Gerard,
(418) 968-6575; Hobby Shop,
(418) 962-6565



CRCCC, Box 309, Clinton, Ontario NOM
1L0; Eric Russell, (519) 482-9429



CTG, 450 Chemin de la Grand Ligne,
Granby, Quebec; (514) 358-4419



CTL, 495 Industriel, Longueuil,
Quebec; (514) 358-4419



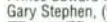
Dustkickers R/C Raceway, 1785
Cypress Rd., Quesnel, British Columbia
V2J 4B1;
Darrell Dinsdale, (250) 747-2680



Dynamic Hobbies, 21 Concourse Gate,
Unit 6, Nepean, Ontario K2E7S4; Clark
Freeman, (613) 225-9634



East Coast Model Center Raceway,
13 Glen Stewart Dr., Ste 1, Southport,
Prince Edward Island C1A 8X9;
Gary Stephen, (902) 569-3262



Fast-Trax Speedway, RR 4, Trenton,
Ontario; Russ McPeak, (613) 394-6411



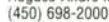
Fly'n Bryan's Radical Raceway
& Little Shop of Hobbies, RR #1, Ste.
12, Comp. 49, Chase, British Columbia
VOE 1M0; Bryan Coffey/Dani Potvin,
(604) 955-0669



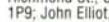
Gilles Comtois, 1458 Boul. Lafleche,
Bale-Comeau, Quebec G5C 1E1;
(418) 295-1830



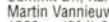
Hobby 2000, 75 St.-Jean-Baptiste, Ste.
140, Chateauguay, Quebec J6J 3H6;
Hogues-Andre Meloche,
(450) 698-2000



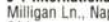
Honda House Motor Speedway, 384
Richmond St., Chatham, Ontario N7M
1P9; John Elliot, (519) 354-5530



Interior R/C Raceway, 34-1605
Summit Dr., Kamloops, BC, V2E 2A5;
Martin Vannieuvenhuizen, (604) 374-
1268 or (604) 374-8458



J-T International Raceway, 127
Milligan Ln., Napanee, Ontario K7R
8A1;
N. O'Neill, (613) 354-0099



Leading Edge R/C Speedway,
731 Gardiners Rd., Kingston, Ontario
K7M 3Y5; Mike and Tony Daicar,
(613) 389-4878



Mid-Canada R/C Speedway, 216
Hutchings, Winnipeg, Manitoba R3H
0L3; Richard Driedger,
(204) 339-6566



Miniatures & Passions, 204 St. Charles,
#103, Ste. Therese, Quebec J7E 2 B4;
Gilles Lachance, (514) 979-7989



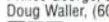
Off-Road R/C Raceway, 76 Eddystone
Ave., North York, Ontario M3N-1H4;
Ron Lefebvre, (416) 740-0536



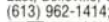
**Prince George Radio Controlled
Car Club,** 202 Explorer Cres.,
Prince George, B.C. Y2M5R8;
Doug Waller, (604) 561-0035



Quintrax Speedway, 610 Dundas St.
East, Belleville, Ontario K7K 2M1;
(613) 962-1414; fax (613) 962-7306



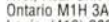
Randy Shantz Raceway, 1015 W. 14th
St., North Vancouver, British Columbia;
Steve Mulhal, (604) 945-3888



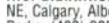
R/C Champ Raceway, 670 Progress
Ave., Rear Unit #13-16, Scarborough,
Ontario M1H 3A4; Ben, Matthew or
Louie, (416) 289-8717



R.C. G.E.A.R.S., 87 Castlebrook Way
NE, Calgary, Alberta T3J 2A7; Paul
Parks, (403) 285-0170



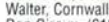
Recreation R/C Raceway, Hwy. 16 and
Ferry Ave., Prince George, BC;
Doug Waller, (604) 561-0035



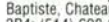
Ronbo's R/C Racing, R.R. 1, Glen
Walter, Cornwall, Ontario K6H 3G4;
Ron Giroux, (613) 936-0176



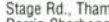
Rouillon Hobby Track, 177-D St. Jean
Baptiste, Chateauguay, Quebec J6K
3B4; (514) 698-2151



Shadetree Raceway, R.R. #4, 22566
Stage Rd., Thamesville, Ontario;
Darrin Charbonneau, (519) 692-5211



Snye Wreck RC, R.R. #1, St. Regis,
Quebec H0M 1A0; Aimee Mitchell,
(613) 575-2496



**South Muskoka R.C. Track & Mini
Putt,** 8903 Hwy. 11, Orillia, Ontario L3V
6H3; Justin, (705) 329-0397



Spinnin Wheel Raceway, RR 1, Ariss,
Ontario NOB 1B0; (519) 824-1614



South Okanagan Roadhogs, Skha Lake
Rd., Penticton, BC;
Willie Lemm, (604) 492-5698



Steeltown Speedway, 3580 Kirk Rd.
West, Binbrook, Ontario L0R 1C0;
Paul Snyder, (905) 227-7508



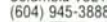
Sudbury Organized Auto Racing,
765 Barrydowne Rd., Sudbury, Ontario
P3A 3T6; Ken Moore, (705) 524-5339



Thunder Alley Raceway, Lambton Mall,
1380 London Rd., Sarnia, Ontario N7S
1P8; Rob Smith, (519) 882-3361

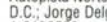


Vancouver R/C Road Racers, #100-
2733 Barney Hwy., Coquitlam, British
Columbia V3E1K9; Roger Brown,
(604) 945-3888

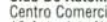


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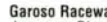
Club De Automodelismo Colombiano,
Centro Recreativo Cafam, Kilometro 14
Autopista Norte, Santafe De Bogota,
D.C.; Jorge Delgado,
1-6130588



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Centro Comercial Guaymaral, Kilometro
16 Autopista Norte, Santafe De Bogota,
D.C.; Jorge Delgado, 1-6130588

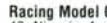


Garoso Raceway, Avenida Liberta-
dores con Diagonal Gran Colombia,
Cucuta; Gabriel Rodriguez,
975-751892



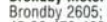
CYPRUS

Racing Model Club, Kennedy Ave. N.
42, Nicosia; Andrea Sotiriou, 493186;
fax 493229

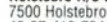


DENMARK

Bronby Motor Club, Roskildevej 460
Bronby 2605; Soren Boy Holst,
45-36-472-462



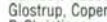
Holstebro R/C Buggy Club, Mozartsvej
7500 Holstebro 2600; Michael Brusholt,
45-97-412-734



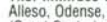
Klub 144 Raceway, Bagsvaerdvej
144A, 2800 Lyngby;
Henrik Carstens, 45-42-88-3691



Rainbow Raceway, Eriksvej 9
Glostrup, Copenhagen 2600;
P. Christiansen, 45-52-848-504

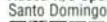


Thor Minirace Odense, Sohussvej 255,
Alleso, Odense, behind Alesso Hallen
(Sport Centre), Odense; Ulrich
Rasmussen, 45-65-303-707



DOMINICAN REP.

Adoca R/C Speedway, Feria Ganadera,
Santo Domingo; (809) 220-5266

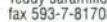


**La Barranquita R/C International
Speedway,** Santiago; (809) 582-2303



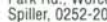
ECUADOR

Hobby Centre A.C.R.O. Club,
Via a Turri Km O.S. Cuenca-Ecuador;
Teddy Jaramillo, 593-7-831-289;
fax 593-7-817082



ENGLAND

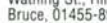
Chessington Radio Car Club, Surbiton
Sport Club, Riverhill Estate, Worcester
Park Rd., Worcester Park, Surrey; Ian
Spiller, 0252-20657



Hampshire Racing Center, Viabes
Craft Center, Basingstoke, Hampshire;
Tony Eudola 44-1276-61402



Hinckley RCCC, Three Pots Inn, A5
Wathing St., Hinckley, Leicestershire;
Bruce, 01455-890580



Worcester Model Car Club,
Christopher Whitehead High School,
Bromwich Rd., St. John's, Worcester
WR2 6Q9; Mr. Hardy



FRANCE


Auto Model Club de l'ouest, 45 rue de
Menez, Lojherhet 29470;
Peuziat Michel, 02-98071764



Auto Electron, 35, rue B. de Ventadour,
Limoges 87000;
M. Boudoul, 55 062763




Crame Roncq, 64 rue du Becquerel,
593

Nahshoneat, Abba Nile Silver Str. 64, Haifa 32809; Golan Levy, (972) 039386444 or (972) 04231252


ITALY

Associazione Modellisti Cossato, via P. Maffei, Cossato 13014, Biella; Zanellato Romildo, 015-405881; fax 015-922709



JAPAN

Xiwakuni R/C Track, PSC 561, Box 978, FPO AP 96310-0978; David T. Eck, 81-6117-53-3662



Yokota R/C Racers, PSC #78, Box 3889, APO AP 96326, Tokyo; Donnie Leornas, 011-813-11-757-2012 or 001-813-11-752-2272


Zama Off-Road Raceway, 17th ASGCM Unit 45013, Box 3232, APO AP 96338; SFC Ken Campbell, 81-3117-63-8478


KUWAIT

Inferno DX 4WD Track, P.O. Box 9167, Ahadi 61002; Yousuf Acqatari


LEBANON

Wild Willy RCC, Oscar St-Jal Eddie, Beirut; 00961-4-403751


MALAYSIA

Titliwangsa Raceway, Lot 128, Ampang Park, Shopping Centre, Jalan, Ampang, Kuala Lumpur 50450; R.A.C.E. Sdn Bhd., 03-2614496



Jump Square Arena, A121.SG, Buloh N/V. 47000, SG, Buloh, Selanor Thomson Chong, (603) 656-2513


MEXICO

Alces Off Road, Lopez Mateos y Rayod S/N, Ensenada, Baja California, BC 22830; Jorge Bustamante, 667-6-1476, 61477, 86729


Baja Jr., H. Valdez 151 Pte. Y Gmo. Prieto, Los Mochis Sinaloa 81200; Memo Asencio, Gaby Macias, 681-20276; fax 681-26430


Club Kyosho de Automodelismo Departino, Av. Pacifico 216 Coyoacan; Ajusco-Toluca Km 15.3 DF 04330, Ing. Jorge Perez Holder, 525-544-08096; fax 525-544-7133


Cinamo Coca-Cola, Ruiz Cortines 620 Col. Central de Carga, Guadalupe, Nuevo Leon 67120; Sergio Garza, 83-35-70-09/79-32-33


Hobby Centro, 12 De Diciembre No. 3070-A, Guadalupe, JAL 45550; Alejandro Ortiz Del Toro, 36-21-46-28


Hobby's Formula, Au observatorio 457 DF 01120; 905-502-3620


Hobby Model's Raceway, Blvd. Garcia de Leon, 1555, Morelio, Michoacan 58260; 431-5-01-22


Jaguar R/C Club, Calz. Zavaleta 116, Puebla 72150; Chema, Denise or Chiro, 22-31-00-91, 22-33-00-94


La Hielera, Prol Corregidora Nte 350, Queretaro, QRO C/P 76160; Jorge Morelos Rabelli, 42-12-15-25


Pista Casino, Hotel Casino de la Selva, Cuernavaca, Morelos 16507; Luis Duhart, 73-19-12-38


R/C Racing Club, Obsidiana #2900, Zapopan, Jalisco 44560; Fernando Hernandez, 3-616-73-47


Tony's Track, Obregon 364 Sur, Culican Sinaloa; Guillermo Prieto, 67-165708-168141


NETHERLANDS


H.F.C.C. Hollandia, De Werf 60, The Hague; G. de Jong, 031-070-3679820


M.A.C. Vlymen, Hendriklaan 6, Vlymen; Ju Kasteren, 31-73-517906


NEW ZEALAND

Capital Model Racers, Avalon, Lower Hutt; Roger Whitmarsh, 04-566-5714


Counties R/C Raceway, Pukekohe Showgrounds, Station Rd., Pukekohe, R. Northcott, 09-23-86904



Harewood Radio Control Car Club, 550 Sawyers Arms Rd., Christ Church, Dean Johnson, 09-0-3880 344


Papakura Indoor R/C Car Club, 25 Tainere Cres., Papakura, Auckland; Colin Perry, 09-298-4711


Western District R/C Off-Road Car Club, CNV Bancroft/Akatea Prive, Auckland; Chris, 09-838-5201


NORWAY


Aurskog R/C Club, Aursmoen, 1930 Aurskog; Tommy Gjeleseth, 47-63-86-21-61


Dalen Raceway, P.B. 728, 6401 Molde, Johnny Reitan, 94 64 52 95


Hadeland Raceway, 2750 Gran, Gran; Dag Bakke-Nilssen, 61330405


Store-Baller Raceway, 2750 Gran, Gran; Ola Raastad, 61330225


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Boyle R/C Hobby Shop, Unit No. 10 Lucas Commercial Center, Marcos Hwy., Decembarmot, Antipolo, Rizal; Jose "Boy" Chua, 721-2555


Philippine F1/Touring Club, Super Mall I, EDSA, Quezon City 1156; Raymond Aguilar/Ron Villalor, 896-64-15/23-30-08



Philippine R/C Association, B.F. Homes Paranaque, Metro Manila 1700; Ronald/Manny Villalor, 23-30-08


Quezon City Radio Control Club, Quezon City Memorial Cir., Quezon City, Benjie Lumanlan, 731-94-53


PORTUGAL

Aero Clube da Madeira, Rua do Castanheiro E-2, Funchal, Madeira; fax 091-221265


SOUTH AFRICA

Banana County R/C Racing Club, P.O. Box 988, Margate, 4275; Dennis Steenmans, 27-0-391-20975


Xtreme Raceway c/o Wannenburg & Dayan Rd., Dayan Glen, Boksburg, Gauteng; Anton, 083-442-4567; www.recycle.co.za; email: recycle@netactive.co.za


Frantic Raceway, Santam Plaza, Shop 168, Welton; Wayne Roodt, phone/fax 27-57-35-72849


Gordons Bay R/C Club (GBRC), Andrew Norman Sports Centre, Gordons Bay, Cape Province; Andre Hollander, 024-512865


Helderberg Radio Control Car Club, De Beers Soccer Club, De Beers Ave., Somerset West, Cape Province; Andre Hollander, 024-51-2865


Lowveld Radio Control Thunderdrome, Lion's Club Kanyamazne Rd., Nelspruit, Eastern Transvaal; Martin Van Der Merwe, 01311-534-6415



Norkem Raceway Club, Norkem Park Mall, Kempton Park, Gauteng; Dan de Agrella, email: craig@mweb.co.za


Parow Radio Car Club, Northern Sports Complex, Parow, Cape Province; Stirling Spengler, 021-945-4957



Phoenix Raceway, 11 Tugela St., Stillfontein, Transvaal; Lionel Edwards, 018-4842863



Pick 'n' Pay Model Car Club, P.O. Box 11654, Sticksdrop 2570; H. Grobbs, (27) 18 46245421


Pietersburg Model Racing, Landros Marais St., Pietersburg, Northern Transvaal; Peter Van Vuuren, 0152-293-0700


R.C. Superbowl, Elsburg Sports Grounds, Elsburg, Johannesburg; Karl Fawcett, 27119076145



R.A.C.E. Off Road, Cecil Payne Stadium, Maraisburg, Gauteng; Derrick Plank, 682-2173



Rustenburg Off-Roaders, Olympia Stadium, Rustenburg, Northwest Province; Jan Van Vollenhoven, 0142-24-846


Pretoria Off Road R/C Club, Joost Bekker Caravan Park, Decemberville, Pretoria, Gauteng; Gert Swart, 012-377-3238


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ADAM, Mina Flores de la Sienna, Madrid; Alvaro Sarabia, 01-7471113


A.D. Diabillios, Morata de Jalon, 50.260 Zaragoza, Juan Carlos Vicente de Vera, 34-76-605350


Club Modelismo Catilla, P.O. Box 491, Burgos 09080; A.J. Pereda, 34-47-240130


Club Social Sevillana, Crta. Pulianas S/N, Granada; Oscar Saenz, 958-275282



Motoclub Castellon R.C., Rafalafena, S/N, 12004 Castellon; Octavio Traver, (34) 64 229705, (34) 64-237411


Outlaw-Ultima II, Puerto Rico 27, Madrid 28016; Juan Vacas, (34) 915197298


ROARCR, Naval Station, Rota (P.O. Box 53, FPO NY, NY 09540-0013); P.O. Kelly Sexton, 34-56-822652


CRAEM, La Elipa, Madrid; Pablo Llorente, 91-3865952


SWEDEN

Amalie Racetrack, Hjort Vagen 14, 5-46632 Sollenbrunn; Tage Johansson



PROCAR Speedway, Industrigatan 8, 430 20 Vedige; Lars Nordin, 46-0-340-38784; fax 46-0-340-38694



Sollenbrunn Miniracing Club, Hjortvagen 14, 5-446 32 Sollebrunn; Tage Johansson, 46-322-40944


TURKEY


B&B OTO Güven Raceway, Gaziosmanpasa Sokak Kadioky, Goztepe Parki, Istanbul, 0216-4186118, or 0216-3490742


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R/C Mariche, KM4 Zona Industrial, Del Este Via Mariche, Caracas DF 1070-A; Bruno Morganti, 58-02-241-3969 or 241-4993


Santa Paula R/C Club, Polideportivo de Santa Paula urbanization Santa Paula El Cafetal, Caracas, P.O. Box 66886 Plaza las Americas; Isaac Abecasis, 02-2423954 or Franco Agrusa, 02-4510314


WEST INDIES

Island Raceway, 8 Mile Post Jacks Hill, St. Andrew, Jamaica; Rodney Littau, (809) 926-7034 or 927-1198


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Chris's BACK LOT

The opinions expressed on this page do not necessarily represent the opinions of the entire *Car Action* staff. Any resemblance to reality is purely coincidental. Send your correspondence, hate mail, love letters, photographs—anything you like—to Chris's Back Lot, c/o *RC Car Action*, 100 East Ridge, Ridgefield, CT 06877-4606 USA; chris@airage.com.

BY CHRIS CHIANELLI

Got a vision? We wanna help!

Get as excited as the next guy when the latest kits come in, but the RC vehicles that interest me most can't be had in any hobby shop. I'm into homebuilts—those mechanized masterpieces of industrial-strength imagination that show off a greater level of skill and craftsmanship than the usual kit build-up requires. I have my favorites: the shopping-cart Cinderella story of Hector Aponte's Mongoose Monster Truck is one; Dave Sproul's Little Red Wagon is another; and I'll always dig Robert Haverfield's incredible sci-fi creations.

But, of late, I've been less enthusiastic about the homebuilts I've seen. Don't think for a second that I'm disparaging anyone's work—I'm constantly amazed by the skill I see in homebuilt projects—but I think it's time to throw down the gauntlet of imagination. I want to see you guys come up with something other than another tube-frame Clod Buster. I want to feel my eyeballs pop out of my head like they used to. I want a little Marty Feldman action when I see your next project, and I'm going to give you a little incentive.

Announcing the first ever "Back Lot" homebuilt challenge!

I want your wildest homebuilt ideas. It's that simple. Don't worry about having the skills, resources, or tools to actually build the thing; it's the idea I'm interested in. Just grab paper and a pen, and tell me what you would build if you could build anything. Traxxas Stampede with tank treads and a gun turret in the bed that fires paint balls? I love it. Nitro RS4 stretched into a long-wheelbase 4WD funny car? Sounds great. What about a dog-walking, poop-scooping T-Maxx! YES! Go nuts!!

If you can draw a picture of what you would like to build, send that in, too. I love to see artwork (don't worry if you can't draw; it's optional!)



Here's what you could win

The reader who submits what I think is the most creative, over-the-top, amazing-yet-doable idea will win a complete set of Hudy Precision tools. Hey; you can't build a top-shelf homebuilt without top-shelf tools! These are the ultimate RC tools; they feature high-carbon, precision-ground tool-steel tips, knurled aluminum handles (which are hollow, for easy-to-handle lightness) and the best "feel" in a tool (that's my opinion anyway).

But it gets better. Each tool will be custom engraved with the winner's name! How sweet is that? Nobody hooks you up like I do. I rule! I rule your world! I am king EVERYTHING!!

OK ... sorry I'm back in control now.

Anyway, the point is, you got the idea, you got the tools.

